

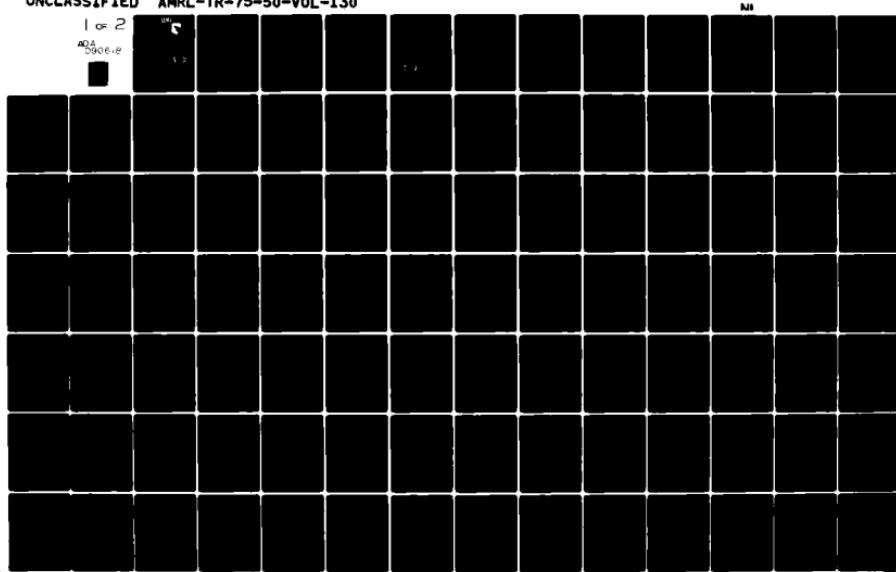
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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK.

Volume 130 .

A-7 Aircraft In The AF32A-19 And The AF32A-24
Noise Suppressors, Near and Far-Field Noise ,

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Robert A. Lee

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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER



HENNING E. VON GIERKE
Director
Biodynamics and Bioengineering Division
Aerospace Medical Research Laboratory

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are reported for 4 locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

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PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723107, Technology to Define and Assess Environmental Quality of Noise From Air Force Operations.

The author gratefully acknowledges Mr. John Cole, and Mr. Robert Powell for their assistance in preparing this report, Mr. Keith Kettler for his assistance in acquiring the raw data, Mr. Henry Mohlman and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing, and Mrs. Norma Peachey for assistance in typing this report.

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Table of Contents

	Page
INTRODUCTION	3
NEAR-FIELD NOISE	4
FAR-FIELD NOISE	6

List of Tables

NEAR-FIELD NOISE

1. Measurement Locations and Test Conditions for the AF32A-24 Suppressor	5
2. Measured Sound Pressure Level	
1-3 Octave Band	9-10
Octave Band	11-12
3. Measures of Human Noise Exposure	13-14

FAR-FIELD NOISE

4. Test Conditions for the AF32A-19 Suppressor	15
5. Test Conditions for the AF32A-24 Suppressor	16
6. Measured Sound Pressure Levels	17-24

List of Figures

NEAR-FIELD NOISE

1. Measurement Locations for the AF32A-24 Suppressor	5
--	---

FAR-FIELD NOISE

2. Measurement Locations for the AF32A-19 Suppressor	7
3. Measurement Locations for the AF32A-24 Suppressor	8
4. Normalized Far-Field Noise Levels	25-32
5. Overall Sound Pressure Levels — Contours	33-40
6. C-Weighted Sound Levels — Contours	41-48
7. A-Weighted Sound Levels — Contours	49-56
8. Perceived Noise Levels — Contours	57-64
9. Speech Interference Levels — Contours	65-72
10. Permissible Exposure Times — Contours	73-84
11. Octave Band Sound Pressure Levels — Contours	85-156

INTRODUCTION

The A-7 aircraft, powered by one Allison TF11 A1 engine, is a single-seat tactical fighter of outstanding target kill capacity. The aircraft is manufactured by Vought Systems Division of LTV Aerospace Corporation and code named the Corsair II. The AF32A-19 noise suppressor is manufactured by Koppers Environmental Elements Corporation. The AF32A-24 noise suppressor is made by the E.C. DeYoung Company. Both suppressors were designed to provide noise level reduction for all A-7 aircraft during ground runup operations.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations in the AF32A-19 and AF32A-24 noise suppressors. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the A-7 aircraft.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL TR 75-50) as a multi-volume handbook that quantifies the noise environments produced at flight ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15°C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. Refer to Volumes 1 and 2 (references 1 and 2) such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight flight crew and passenger noise, near-field ground crew noise, far field community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to AMRL BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application* (AMRL TR 75-50(1)), Aerospace Medical Research Laboratory, Wright Patterson Air Force Base, Ohio, 1975.
2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far Field Noise* (AMRL TR 75-50(2)), AMRL, WPAFB, OH, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near-field noise data on the AF32A-24 noise suppressor system during ground runup operations of the A-7 aircraft. For these tests the aircraft was located in the AF32A-24 noise suppressor at McEntire ANG Base, South Carolina with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the four engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all the noise samples on magnetic tape. During analysis of each sample, he determined the one-third octave band root-mean-square sound pressure using a 4-second integration time to derive a power-averaged level for each location. Figure 1 shows the four near-field locations where ground crew are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations are difficult in the near-field since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test condition A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the A-7 aircraft in the AF32A-24 suppressor at the four ground crew locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures given in Table 3, which are widely used to assess the effects of noise on personnel and their performance.

TABLE 1
MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENTS

A-7 Aircraft in the AF32A-24 Noise Suppressor
 Ground Runup, Test #77-833

Ground Crew Location

1	Control Cab
2	Trim Check Adjustment Position
3	Leak Check Position
4	Fire Marshal Position

Aircraft Engine Operation

A	Idle Power (54.4% RPM)
B	70%
C	85.6% RPM
D	Military Power (97.7% RPM)

Meteorology

Temperature	22.2 C
Bar Pressure	.757 M Hg
Rel Humidity	35 %
Wind — Speed	2 M SEC (4 KTS)
— Direction	130 Deg

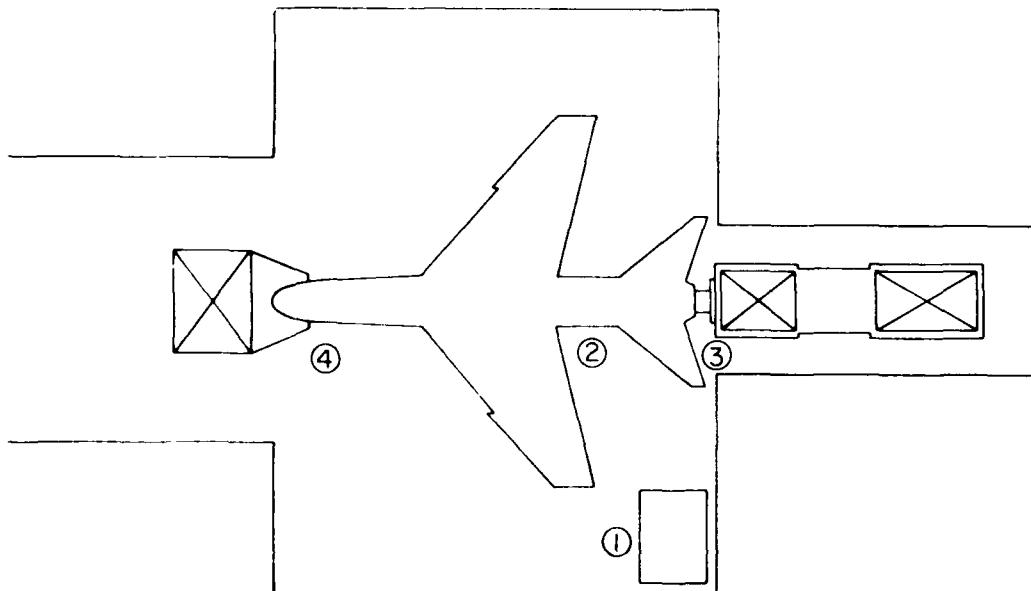


Figure 1. Near-Field Measurement Locations
AF32A-24 Noise Suppressor

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired far-field data during a 1-2 hours test period for each suppressor, thus keeping similar meteorological conditions for the duration of each test. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle for the A-7 aircraft in the AF32A-19 noise suppressor at Rickenbacker ANG, Ohio. Figure 3 shows this same information for the A-7 aircraft in the AF32A-24 noise suppressor at McEntire ANG Base, South Carolina. The center of the 100 meter radius semicircle used in surveying both of these suppressors was on the ground directly below the center of the exhaust stack.

Tables 4 and 5 provide cockpit readouts of engine characteristics (% RPM, fuel flow, etc.) for each power setting used in these far-field tests. Also listed in these tables are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of their source where the sound waves are spherically diverge and the noise source may be regarded as a point source.

A portable microphone tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 6 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (70° temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphs in Figure 4 which provides a compact summary of the far-field noise characteristics of the aircraft operating in the AF32A-19 and AF32A-24 noise suppressors in a standard format.

Estimates of the noise levels for intermediate power settings (e.g., 90° RPM) and/or different numbers of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 5 through 11 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively: overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level (SNL), interference level, permissible exposure times for personnel and octave band sound pressure levels.

Data excessively influenced by spurious background electronic noise were eliminated from all figures and tables. No data were acquired at the 170° and 180° locations for the AF32A-24 suppressor due to interference of a wooded area. Values for these locations were extrapolated from the data at 150° and 160° at each power setting.

Test personnel performed noise surveys during quiet periods when the background noise was minimal e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background electronic noise were generally not significant because the levels were so low.

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

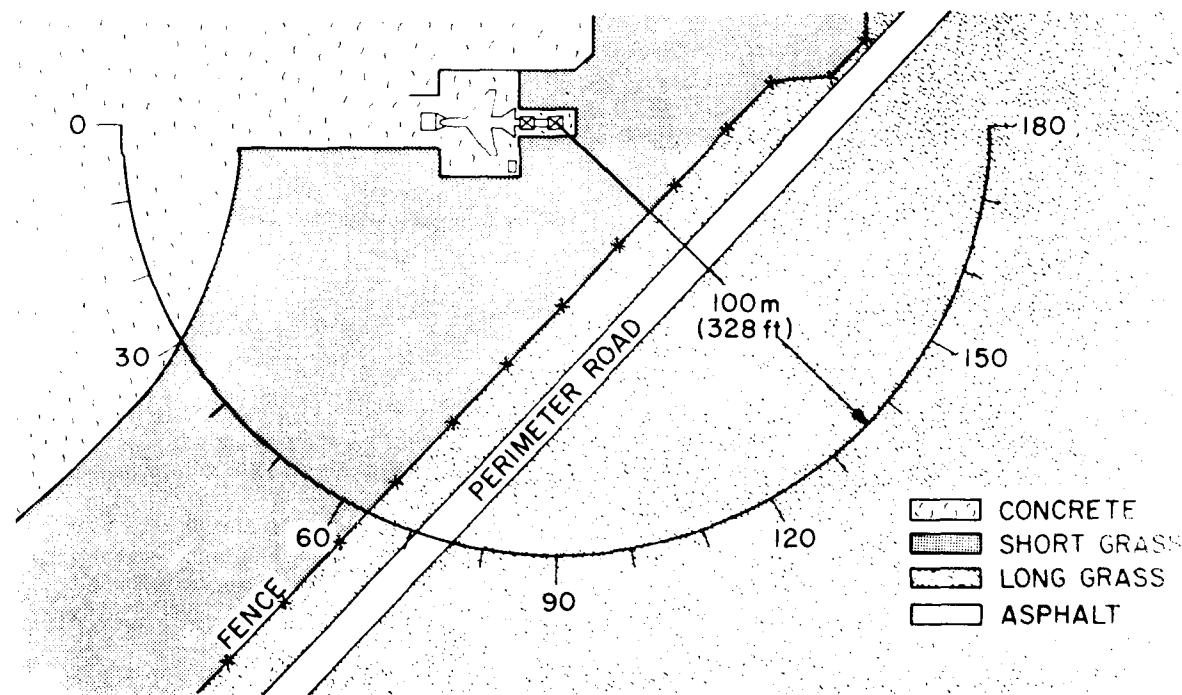
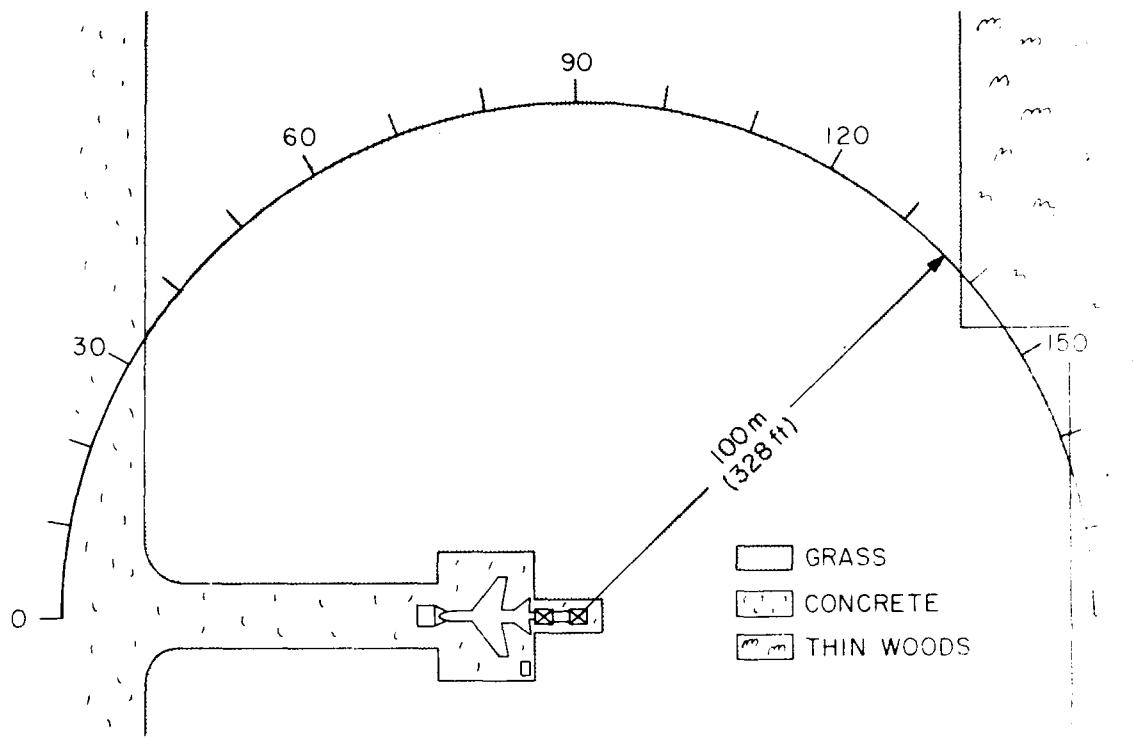


Figure 2. Far-Field Measurement Locations for the AF32A-19 Suppressor at Rickenbacker ANG, Ohio



**Figure 3. Far-Field Measurement Locations for the
AF32A-24 Suppressor at McEntire ANG Base, South Carolina**

TABLE I
1/3 OCTAVE BAND
2

NOISE SOURCE/SUBJECT		OPERATION:		LOCATION/CONDITION		4/B	
A-7 AIRCRAFT IN THE AF32A-24 SUPPRESSOR		GROUND CREW		4/A		2/B	
NEAR-FIELD NOISE LEVELS				1/B		3/B	
FREQ (HZ)		1/A	2/A	3/A	4/A	2/B	3/B
25	85	85	85	87	84	91	88
31.5	83	83	85	84	86	90	88
40	85	90	91	87	88	92	92
50	86	89	89	91	87	94	96
63	82	87	86	86	88	94	94
80	84	93	95	84	87	91	93
104	81	81	84	76	93	92	94
125	90	87	92	76	81	94	88
160	73	82	83	79	78	84	84
200	76	86	87	79	78	86	86
250	71	85	83	80	77	85	86
315	73	81	81	77	76	83	83
400	77	86	83	81	79	84	85
500	93	104	91	88	84	88	89
630	80	90	88	86	89	103	95
800	81	93	93	85	85	93	89
1000	82	90	91	90	85	89	94
1250	94	96	101	107	86	94	92
1600	84	93	95	92	97	99	98
2000	83	94	93	91	94	97	100
2500	83	94	94	91	87	92	93
3150	30	89	88	88	90	95	94
4000	82	93	90	88	90	94	93
5000	81	89	90	91	85	89	91
6300	80	88	87	91	84	89	90
8000	79	87	87	91	84	88	91
10000	76	84	85	87	82	86	88
OVERALL	100	107	106	108	102	108	107

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)
2 1/3 OCTAVE BAND

NOISE SOURCE/SUBJECT		OPERATION:		LOCATION/CONDITION		4/D	
		1/C	2/C	3/C	4/C	2/D	3/D
A-7 AIRCRAFT IN THE							
AF32A-24 SUPPRESSOR							
GROUND CREW							
NEAR-FIELD NOISE LEVELS							
25	94	97	98	94	96	96	99
31.5	93	94	94	94	95	97	97
40	91	92	91	93	93	96	98
50	90	91	91	92	90	93	96
63	88	92	92	93	90	94	94
80	90	94	97	92	94	92	95
100	91	92	94	87	91	93	94
125	90	94	95	89	93	97	97
160	91	94	95	92	95	98	98
200	92	98	97	93	95	100	99
250	88	95	94	95	94	101	100
315	87	93	93	94	95	102	100
400	88	92	94	94	97	101	102
500	92	95	95	95	100	103	104
630	90	94	95	93	99	102	103
800	93	100	98	94	98	105	104
1100	91	96	98	93	100	106	105
1250	90	96	97	93	97	102	103
1600	92	98	100	94	98	103	104
2000	92	97	98	96	97	102	103
2500	105	112	107	102	97	102	104
3150	97	105	101	99	96	102	103
4000	94	99	100	98	101	107	106
5000	92	98	98	99	99	103	106
6300	92	96	97	98	96	101	106
8000	92	95	97	97	96	100	97
10000	92	94	96	94	95	100	104
OVERALL	108	114	112	110	111	116	117
							113

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)
2 OCTAVE BAND

		IDENTIFICATION:			
		TEST 78-833-001			
		RUN 01			
		28 NOV 79			
		PAGE J1			
		LOCATION/CONDITION			
		1/B 2/B 3/B 4/B			
		1/A 2/A 3/A 4/A			
		1/B 2/B 3/B 4/B			
		1/A 2/A 3/A 4/A			
NOISE SOURCE/SUBJECT:	OPERATION:				
A-7 AIRCRAFT IN THE					
AF 32A-24 SUPPRESSOR					
GROUND CREW					
NEAR-FIELD NOISE LEVELS					
31.5	89	92	93	95	94
63	89	95	96	93	92
125	91	89	93	82	98
250	79	89	89	83	93
500	93	104	93	82	89
1000	95	98	102	90	91
2000	88	98	99	97	97
4000	86	96	94	94	98
8000	83	91	91	95	93
OVERALL	100	107	106	106	102
					108
					107
					107

TABLE I MEASURED SOUND PRESSURE LEVEL (dB)
OCTAVE BAND
2

		IDENTIFICATION:			
		TEST 78-833-001			
		RUN 02			
		28 NOV 79			
		PAGE J2			
		LOCATION/CONDITION			
		1/C	2/C	3/C	4/C
	FREQ (HZ)				
	31.5	98	99	100	98
	63	94	97	99	97
	125	95	98	104	94
	250	94	100	99	99
	500	95	98	100	99
	1000	96	102	103	103
	2000	115	112	108	103
	4000	110	106	105	102
	8000	97	100	101	101
	OVERALL	108	114	112	110
				111	116
				117	113

(TABLE I MEASURES OF HUMAN NOISE EXPOSURE

3

				IDENTIFICATION:	
NOISE SOURCE/SUBJECT		OPERATION		TEST 78-833-001	
A-7 AIRCRAFT IN THE AF 32A-24 SUPPRESSOR		RUN 01		OMEGA 3.2	
GROUND CREW		28 NOV 79		TEST 78-833-001	
NEAR-FIELD NOISE LEVELS		PAGE H1		PAGE H1	
HAZARD/PROTECTION		LOCATION/CONDITION		4/8	
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN OBC) AT EAR		4/A		3/8	
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR		1/B		2/8	
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)		3/8		4/8	
NO PROTECTION		4/A		3/8	
OASLC	99	107	105	101	107
OASLA	98	105	105	100	106
T	42	13	13	30	11
MINIMUM QPL EAR MUFFS					9
OASLA*	74	82	79	76	
T	960	679	960	960	
AMERICAN OPTICAL 1700 EAR MUFFS					
OASLA*	69	77	74	71	80
T	960	960	960	960	960
V-51R EAR PLUGS					
OASLA*	72	81	78	72	107
T	960	807	960	960	107
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS					
OASLA*	59	65	66	56	80
T	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT					
OASLA*	70	76	78	73	960
T	960	960	960	960	960
COMMUNICATION					
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)					
PSIL	92	100	98	92	100
ANNOYANCE					
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)					
TONE CORRECTION (C IN DB)					
PNLT	114	122	120	124	123
C	5	5	3	5	4
					1
					2

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE I MEASURES OF HUMAN NURSE STAFFING

3

IDENTIFICATION						
NOISE SOURCE/SUBJECT		OPERATION		TEST 78-833-001		
A-7 AIRCRAFT IN THE				OMEGA 302		
AF 32A-24 SUPPRESSOR				RUN 02		
GROUND CREW				28 NOV 79		
NEAR-FIELD NOISE LEVELS				PAGE H2		
HAZARD/PROTECTION	C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR	A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR	MAXIMUM PERMISSIBLE TIME IT IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)	LOCATION/CONDITION	2/D	3/D
NO PROTECTION	OASLC OASLA T	106 108 8	114 115 6.2	109 109 6	11.0 11.0 5	115 115 2.2
MINIMUM QPL EAR MUFFS	OASLA*	81	87	83	85	90
AMERICAN OPTICAL 1700 EAR MUFFS	T	807	285	339	404	170
OASLA*	76	81	80	78	79	84
V-51R EAR PLUGS	T	960	807	960	960	480
OASLA*	78	84	83	80	83	91
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS	T	960	480	571	571	240
OASLA*	65	71	70	67	69	74
-113 GROUND COMMUNICATION UNIT	T	960	960	960	960	960
OASLA*	82	83	86	82	81	87
COMMUNICATION PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)	T	679	202	339	679	285
PSIL	99	104	103	100	103	108
ANNOYANCE	TEST 78-833-001					
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDD)	TEST 78-833-001					
TONE CORRECTION (C IN DB)	PNLT	126	133	123	125	131
C	3	4	2	2	1	6
BASED ON CALCULATED SPN, SPECIFIED NUMBER PREFERENCE IS TEST	TEST 78-833-001					
ANNOYANCE	TEST 78-833-001					
PREFERENCE	1/C	2/C	3/C	4/C	4/D	4/D

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TABLE 4
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

A-7 Aircraft in the AF32A-19 Noise Suppressor
Rickenbacker ANG Base, Ohio

Aircraft Engine Operation

Idle Power	Single Engine 55 % RPM
70% RPM Runup	Single Engine 70 % RPM
85% RPM Runup	Single Engine 85 % RPM
Military Power	Single Engine 96 % RPM

Meteorology

Temperature	28.9 C
Bar Pressure	.766 M Hg
Rel Humidity	28 %
Wind — Speed	Calm
— Direction	Calm

TABLE 5
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

**A-7 Aircraft in the AF32A-24 Noise Suppressor
 McEntire ANG Base, South Carolina**

Aircraft Engine Operation

Idle Power	Single Engine 54.5 % RPM 438 C. Exhaust Gas Temperature 1000 LBS HR Fuel Flow
70% RPM Runup	Single Engine 70.0 % RPM 416 C. EGT 1000 LBS HR, FF
85% RPM Runup	Single Engine 85.6% RPM 400 C. EGT 3700 LBS HR, FF
Military Power	Single Engine 97.7 % RPM 572 C. EGT 9000 LBS HR, FF

Meteorology

Temperature	22.2 C
Bar Pressure	.757 M Hg
Rel Humidity	35 %
Wind - Speed	2 M SEC (4 KTS)
- Direction	130 Deg

TABLE I MEASURED SOUND PRESSURE LEVEL (dB)

173 OCTAVE BAND

DISTANCE = 10 METERS

NOISE SOURCE/SUBJECT		OPERATION		METEOROLOGY												TEST 77-033-0-1			
		IDLE PWR,	55% RPM	TEMP = 23 C			BAR PRESS = 766 mb			REL HUMID = 28 %			RUN 01		PAGE 2		PAGE 2		
		SINGLE ENGINE	SUPPRESSED GROUND RUNUP																
FREQ (Hz)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	65	67	64	67	65	66	65	64	63	61<	63	64	65	63	65	66	66	66	66
31.5	71	77	69	69	72	73	71	70	67	68	67	67	67	66	68	68	68	68	68
40	73	79	78	78	79	81	79	80	77	75	73	74	75	71	70	70	70	71	71
50	83	78	75	78	85	81	81	81	81	81	81	81	81	77	74	74	74	74	78
63	77	76	76	79	75	78	76	76	76	75	75	74	74	74	74	74	74	74	74
80	73	71	72	72	72	73	73	73	73	73	73	73	73	73	73	73	73	73	73
100	64<	63<	65<	66<	67<	65<	66<	64<	68<	68<	68<	68<	68<	68<	64<	66<	66<	66<	64<
125	66<	62<	67<	66<	67<	66<	64<	64<	66<	66<	66<	66<	66<	66<	62<	61<	61<	58<	57<
150	60<	60<	66<	60<	60<	61	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	60<	58<	58<
200	52<	52<	62<	62<	62<	62<	63<	63<	63<	63<	63<	63<	63<	63<	60<	60<	60<	58<	58<
250	62<	62<	63<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<	62<
315	60<	60<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	58<	55<	55<	55<	55<	55<
400	61<	62<	62<	61	52<	54<	51<	57<	56<	54<	54<	54<	54<	54<	50<	51<	49<	49<	49<
500	62<	62<	60	58	57	52<	54<	54<	53<	53<	52<	52<	52<	52<	55	55	49<	47<	46<
600	59	61	58	60	55	57	59	56	59	56	55	55	55	55	55	55	52<	51<	49<
1000	56	59	60	57	57	59	58	58	58	58	58	58	58	58	56	56	54	52	51<
1250	59	64	63	66	60	62	64	64	64	66	61	61	61	61	61	61	61	62	65
1600	52	57	56	60	53	63	60	61	61	61	57	60	60	60	60	60	57	56	59
2000	52	59	59	59	61	60	60	60	60	60	62	60	60	60	63	57	57	56	49
2500	50	59	64	61	61	59	59	59	59	59	57	56	56	56	57	55	55	55	48
3150	46	58	56	58	57	57	58	58	58	58	55	55	55	55	52	51	50	48	44
4000	45	55	56	57	57	58	55	56	55	55	53	49	48	49	48	47	51	43	43
5000	43	54	54	55	54	54	52	52	53	47	45	44	44	44	46	45	44	47	39
6300	37	47	48	50	49	49	47	49	48	42	41	40	40	39	41	42	42	42	35
8000	34	43	45	46	46	45	44	44	44	48	36	36	34	34	36	36	36	37	31<
10300	38	38	39	40	41	39	38	38	37	31<	29<	29<	28<	26<	30<	32<	33<	31<	26<
OVERALL	84	84	92	84	87	85	85	84	84	84	83	81	79	78	77	78	78	80	

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE I MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 100 METERS

TABLE I
MEASURED SOUND PRESSURE
1/3 OCTAVE BAND
DISTANCE = 100 METERS

TABLE I MEASURED SOUND PRESSURE LEVEL (dB)											
1/3 OCTAVE BAND DISTANCE = 100 METERS											
6											
NOISE SOURCE SUBJECT: A-7 AIRCRAFT IN THE AF32A-24 SUPPRESSOR ENGINE TF41-A-1 FAR-FIELD NOISE											
OPERATIONS: (TOLE POWER (54.4% RPM)) (SINGLE ENGINE) (GROUND RUNUP (SUPPRESSED))											
FREQ (Hz)	1	10	20	30	40	50	60	70	80	90	100
ANGLE (DEGREES)	110	120	130	140	150	160	170	180			
25	70	70	71	73	72	74	73	75	74	71	67
31.5	69	68	67	71	70	72	74	71	68	65	64
40	67	68	67	68	63	69	68	64	63	65	65
50	71	71	70	65	65	66	63	63	65	65	65
63	68	66	66	64	62	62	60	61	64	62	62
80	71	69	70	71	67	65	59	57	59	61	58
100	57	58	61	60	58	56	58	59	58	59	58
125	59	61	58	62	60	62	60	55	56	59	56
160	54	54	55	54	52	53	52	49	53	49	46
200	54	54	51	53	52	51	52	50	50	47	47
250	54	52	52	51	50	49	47	50	48	48	48
315	52	50	50	49	45	45	44	46	46	46	46
400	51	47	50	43	46	44	47	46	43	42	42
500	53	55	54	46	49	46	48	46	46	46	46
630	49	47	48	46	46	48	45	49	46	46	46
800	51	47	47	47	45	48	45	52	54	49	49
1000	50	47	46	45	46	45	46	52	55	49	49
1250	64	57	57	50	54	53	55	64	61	53	53
1600	51	48	47	44	49	47	53	49	52	48	48
2000	49	45	45	42	46	45	45	50	45	42	42
2500	47	43	45	40	43	44	44	50	49	40	41
3150	44	40	41	36	39	39	40	41	39	47	43
4000	45	39	40	36	39	38	40	39	46	44	44
5000	40	36	37	36	37	37	37	45	44	37	37
6300	38	36	37	36	37	37	37	42	42	38	38
8000	38	36	37	36	37	37	37	42	42	38	38

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE I MEASURED SOUND PRESSURE LEVEL (DB)

6
1/3 OCTAVE BAND
DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT	OPERATION						METEOROLOGY						TEST 77-833-001						
	70% RPM, ENGINE RUNUP	SINGLE ENGINE	SUPPRESSED GROUND RUNUP	TEMP = 29 C	BAR PRESS = .766 Hg	REL HUMID = 26 %	RUN 02	RUN 02	RUN 02	20 NOV 79	PAGE 2	PAGE 2	PAGE 2	PAGE 2	PAGE 2	PAGE 2	PAGE 2	PAGE 2	
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	69	67	66	69	66	68	66	67	66	64	67	69	69	69	69	68	71	71	71
31.5	73	71	73	73	70	69	68	70	70	71	71	71	70	70	69	70	70	70	70
46	83	81	84	85	83	78	78	75	77	79	80	79	78	78	77	77	77	77	80
50	78	82	85	86	83	80	82	81	80	78	78	75	80	80	81	80	79	80	81
63	85	87	89	88	85	87	89	88	89	90	91	90	83	83	84	81	77	79	81
80	85	84	86	87	86	86	83	84	83	83	85	87	86	83	81	77	73	73	78
110	78	76	78	77	79	76	77	78	76	75	76	76	79	76	72	71	70	71	74
125	76	73	76	72	72	75	74	72	72	72	71	69	70	67	69	67	67	67	63
156	73	73	78	71	71	68	70	73	71	71	70	63	65	60	62	64	66	66	61
200	68	70	72	64	61	62	64	65	62	61	59	59	59	59	57	57	57	57	57
250	67	67	68	60	57	57	55	55	56	55	54	54	53	52	54	51	51	51	49
315	67	67	65	59	58	55	55	55	56	55	52	53	53	52	53	54	54	54	53
400	67	68	63	61	58	54	53	53	54	54	53	52	52	53	54	55	55	55	56
500	64	66	64	59	56	55	56	56	56	56	60	59	61	60	57	55	55	55	56
630	67	68	65	61	61	60	62	58	60	60	61	61	62	63	60	58	55	55	56
800	69	68	66	68	63	64	63	61	60	61	61	61	62	62	63	60	58	55	56
1000	68	67	65	68	66	64	63	61	63	62	62	64	65	62	64	65	58	58	56
1250	63	64	64	68	66	66	64	65	64	64	62	63	62	64	65	64	64	64	54
1600	61	62	65	67	68	71	66	69	67	65	65	66	65	66	67	63	58	61	56
2000	61	63	66	66	67	68	65	66	64	65	64	63	63	68	65	62	59	61	58
2500	54	62	63	65	66	67	62	63	61	60	59	58	60	59	57	54	56	51	51
3150	53	59	63	65	64	64	62	63	62	61	58	57	58	57	57	56	57	51	51
4000	51	59	61	64	62	62	59	60	58	56	55	54	54	56	54	53	53	49	49
5000	48	57	59	61	59	58	55	57	54	51	50	49	50	51	49	48	51	45	45
6300	43	52	56	56	54	54	52	53	49	47	46	45	45	46	44	43	46	40	40
8000	37	46	50	51	48	47	45	47	42	41	39	38	39	39	37	36	39	32	32
10000	34	39	44	44	41	41	40	39	35	34	33	33	33	34	32	29	33	27	27
OVERALL	90	91	93	93	91	91	91	92	92	92	89	88	88	86	86	85	85	86	86

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

(TABLE I MEASURED SOUND PRESSURE LEVEL (dB)
6 1/3 OCTAVE BAND
 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:		OPERATION:		METEOROLOGY:		TEST 78-833-001	
		(70% RPM	SINGLE ENGINE	TEMP = 22 C	BAR PRESS = .757 Hg	REL HUMID = 35 %	OMEGA 1.4
		(GROUND RUNUP (SUPPRESSED)	)	)	)	)	RUN 02
							PAGE 2
	FREQ (HZ)	0	10	20	30	40	100
							110
							120
							130
							140
							150
							160
							170
							180
25	74	73	73	75	76	78	76
31.5	74	74	73	75	76	74	76
40	73	71	70	72	73	72	72
50	80	79	79	71	73	72	72
63	76	77	74	74	63	68	67
80	69	69	70	69	67<	63<	66<
106	68	67	68	70	66	62	63
125	66	67	68	70	67	61	62
160	58	60	60	62	58<	59	62
200	57	58	56	56	56	50<	56<
250	58	57	55	55	54	50<	52<
315	56	55	52<	52<	50<	47<	52<
400	56	55	53	52<	51<	48<	50<
500	54<	53<	51<	51<	49<	46<	51<
630	54<	54<	52<	48<	49<	47<	52<
800	54<	53<	53<	50<	49<	47<	50<
1000	53<	52<	51<	48<	50<	46<	51<
1250	54	52<	50<	51<	48<	46<	49<
1600	57	54	57	52	51	47<	50<
2100	60	62	56	59	53	48<	51<
2500	50	49	48	46	44<	47<	50<
3150	54	52	52	53	48<	45<	49<
4000	51	50	49<	51	46<	41<	46<
5000	44<	44<	41<	41<	37<	43<	48<
6300	39<	40<	37<	41<	38<	37<	45<
8000							40<
10000							40<
	OVERALL	83	83	81	82	83	83
							80
							78
							80
							80
							80
							80

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)

6

1/3 OCTAVE BAND
DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:		OPERATION:				METEOROLOGY:				TEST 77-033-001			
A-70 AIRCRAFT IN THE AF 32A-19 SUPPRESSOR		85% RPM, ENGINE RUNUP				TEMP = 29 C BAR PRESS = 766 Hg				RUN 03			
ENGINE TF41-A-1		SINGLE ENGINE				REL HUMID = 28 %				20 NOV 79			
FAR FIELD NOISE		SUPPRESSED GROUND RUNUP				PAGE 2							
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120
25	72	71	71	72	71	71	70	72	73	72	73	73	72
31.5	73	72	75	73	76	74	75	76	75	75	75	75	74
40	81	81	81	82	82	83	81	80	80	79	79	82	81
50	81	81	82	83	82	83	80	83	81	80	84	84	83
63	80	79	79	82	81	82	83	80	81	82	80	82	80
80	81	79	81	82	80	79	80	82	81	82	80	80	78
100	82	81	83	83	83	79	77	77	78	77	77	77	76
125	83	77	82	79	77	74	73	77	75	73	73	72	73
160	83	85	88	82	81	78	80	82	81	80	75	76	72
200	86	88	86	83	79	79	79	79	76	73	71	70	69
250	93	94	94	89	87	82	82	84	81	77	74	70	71
315	85	86	83	78	76	74	71	75	67	66	64	67	66
400	84	87	81	81	78	73	70	69	63	67	66	66	67
500	79	84	79	83	76	74	70	71	69	65	67	69	65
630	81	82	79	80	74	73	71	72	71	68	68	69	65
800	80	81	77	82	78	77	74	75	73	72	75	74	73
1000	81	82	82	81	79	77	73	76	75	75	76	76	75
1250	77	80	77	81	81	79	77	78	76	75	75	76	77
1600	72	78	76	81	81	79	75	76	74	76	75	75	70
2000	70	77	76	79	80	79	75	74	73	73	74	72	73
2500	68	76	76	79	80	82	78	77	75	72	71	72	70
3150	66	74	74	77	77	76	73	73	72	67	68	68	67
4000	63	71	73	75	73	71	70	67	64	63	64	65	65
5000	58	67	69	70	69	68	65	65	62	60	61	61	62
6300	53	62	65	64	63	62	61	58	56	53	56	56	52
8000	49	56	59	59	59	56	56	52	50	47	49	50	48
16000	44	50	52	51	52	49	49	47	44	41	42	41	40
OVERALL	96	98	97	95	94	92	91	92	91	90	89	89	87

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE I MEASURED SOUND PRESSURE LEVELS (dB)
 6 1/3 OCTAVE BAND
 SUBSTANCE = 100 MILLIS

TABLE I MEASURED SOUND PRESSURE LEVELS (dB) IDENTIFICATION
1/3 OCTAVE BAND
DISTANCE = 100 METERS
6 OMEGA 104

OVERALL 9₄ 9₁ 9₉ 8₉ 8₃ 8₇ 8₄

TABLE: MEASURED SOUND PRESSURE LEVEL (dB)
6 1/3 OCTAVE BAND
DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:										OPERATION:										METEOROLOGY:										IDENTIFICATION:																								
A-7D AIRCRAFT IN THE					MILITARY POWER, 96% RPM					TEMP = 29 C					TEST 77-833-001					OMEGA 1-4					RUN 04					RUN 04																								
AF32A-19 SUPPRESSOR					SINGLE ENGINE					BAR PRESS = .766 Hg					RUN 04					RUN 04					RUN 04					RUN 04																								
ENGINE TF4-A-1					SUPPRESSED GROUND RUNUP					REL HUMID = 25 %					20 NOV 79					20 NOV 79					20 NOV 79					20 NOV 79																								
FAR FIELD NOISE																																																						
FREQ (HZ)										ANGLE (DEGREES)										ANGLE (DEGREES)										ANGLE (DEGREES)																								
J										50										90										130																								
10										60										70										140																								
20										80										90										150																								
30										70										80										160																								
40										60										70										170																								
50										50										60										180																								
63										53										63										77																								
80										53										63										78																								
100										53										63										78																								
125										53										63										78																								
160										53										63										78																								
200										53										63										78																								
250										53										63										78																								
315										53										63										78																								
400										53										63										78																								
500										53										63										78																								
630										53										63										78																								
800										53										63										78																								
1400										53										63										78																								
1250										53										63										78																								
1600										53										63										78																								
2000										53										63										78																								
2500										53										63										78																								
3150										53																																												

TABLE I MEASURED SOUND PRESSURE LEVEL (dB)
6 1/3 OCTAVE BAND
 DISTANCE = 100 METERS

MEASURED SOUND PRESSURE LEVEL (dB)												IDENTIFICATION				
1/3 OCTAVE BAND DISTANCE = 100 METERS												TEST 78-833-601				
NOISE SOURCE/SUBJECT												RUN 34				
A-7 AIRCRAFT IN THE	MILITARY POWER (37.7kW)	TEMP = 22 C	OMEGA 1/4													
AF32A-24 SUPPRESSOR	SINGLE ENGINE	SAR PRESS = .757 H Hz	TEST 78-833-601													
ENGINE TF41-A-1	GROUND RUNUP (SUFFICIENCY)	REL HUMID = 45 %	PAGE 2													
FAR-FIELD INCISE																
(1) FREQUENCY (Hz)	(2) OPERATION	(3) ANGLE (DEGREES)	(4) METEOROLOGY	(5) 30	(6) 45	(7) 60	(8) 75	(9) 90	(10) 105	(11) 120	(12) 135	(13) 145	(14) 155	(15) 165	(16) 170	(17) 180
25	83	84	82	82	85	85	85	85	83	83	81	81	81	81	78	78
31.5	83	83	83	82	85	84	84	84	81	81	81	81	81	81	81	81
46	81	81	83	81	83	83	83	82	82	82	84	84	83	83	80	80
50	76	77	79	76	78	80	79	74	73	73	79	80	79	79	74	74
63	84	84	86	84	86	86	86	86	85	85	80	80	80	80	78	77
80	83	83	81	80	80	80	80	77	76	76	79	78	78	78	77	77
100	79	76	79	76	78	77	77	70	69	69	79	78	78	78	77	77
125	86	86	87	83	87	83	87	78	76	75	83	82	81	81	77	78
160	86	86	85	86	86	86	82	81	79	79	83	83	83	83	76	78
200	88	85	87	84	83	84	84	81	81	81	84	84	84	84	81	81
250	87	85	85	83	82	86	85	83	81	81	84	80	79	79	81	81
315	96	82	81	79	80	79	79	78	77	84	84	81	77	77	77	77
400	88	82	82	79	80	81	80	78	76	85	85	79	77	76	78	78
500	86	86	81	80	79	81	80	77	82	84	84	77	73	77	80	79
630	85	80	79	80	79	79	79	81	82	81	84	84	81	81	81	81
800	83	81	80	81	80	80	80	77	81	80	77	78	76	77	76	76
1000	82	81	80	80	78	80	79	78	80	79	77	77	76	76	76	76
1250	81	80	79	77	79	79	79	78	77	76	75	75	75	75	75	75
1600	79	79	77	77	78	78	78	76	79	77	75	75	75	73	73	73
2000	76	77	74	76	75	76	75	75	74	73	71	72	72	69	70	70
2500	74	74	75	72	73	73	74	72	73	72	70	69	69	67	67	67
3150	72	71	69	70	71	70	71	69	70	69	68	67	66	64	64	64
4000	69	70	69	69	68	69	69	67	68	68	66	65	64	64	63	63
5000	65	65	64	64	65	63	64	62	64	62	61	59	59	59	61	61
6300	62	61	61	61	61	58	61	59	61	59	58	56	56	56	56	56
8000	56	56	58	57	57	54	56	55	56	55	53	51	51	50	51	51
10000	46	46	48	48	47	40	45	45	47	46	42	40	40	41	44	44
OVERALL	97	95	95	94	94	94	94	93	95	95	93	92	91	91	91	91

REFUSE CURRENCIES TO LEVEL CREDIT RISK IN THE MARKET.

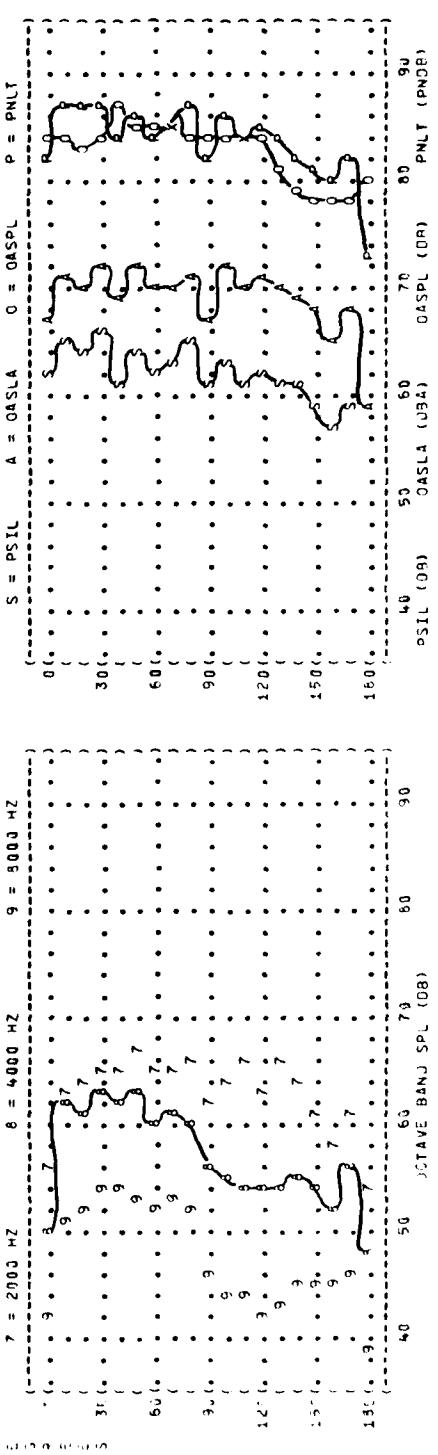
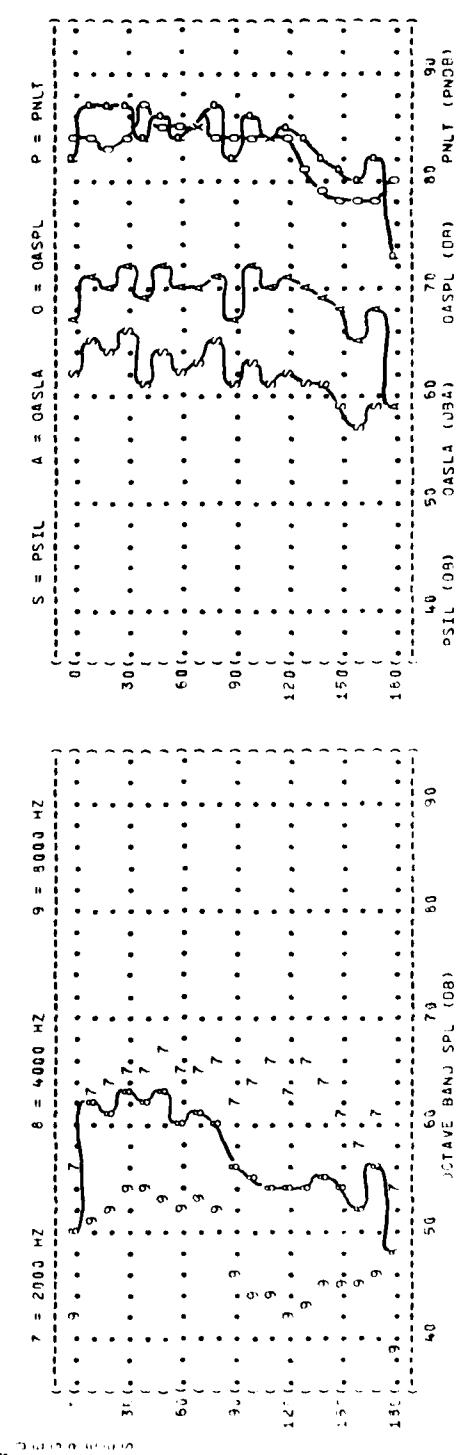
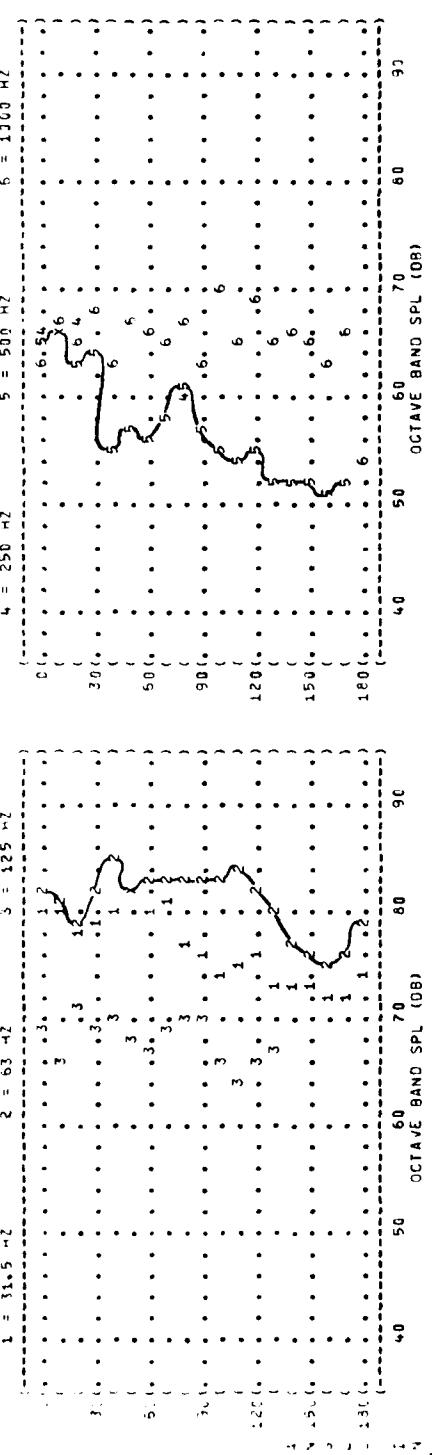
FIGURE 4 NORMALIZED FARFIELD NOISE LEVELS

4 DISTANCE = 100 METERS

TEST SUBJECT:
A-7G AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TR-41-A-1
FAR FIELD NOISE

OPERATION:
IDLE PMR, 55% RPM
SINGLE ENGINE
SUPPRESSED GROUND PNL

IDENTIFICATION:
OMEGA 1-4
TEST 77-933-01
JUN 01
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
PAGE 6



OCTAVE BAND SPL (dB) OCTAVE BAND SPL (dB)

OCTAVE BAND SPL (dB) OCTAVE BAND SPL (dB)

OASPL (USA) OASPL (USA) OASPL (USA) OASPL (USA)

OASPL (USA) OASPL (USA) OASPL (USA) OASPL (USA)

PNL (PNDB) PNL (PNDB) PNL (PNDB) PNL (PNDB)

PNL (PNDB) PNL (PNDB) PNL (PNDB) PNL (PNDB)

FIGURE NO. 4 FIELD NOISE LEVELS

DISTANCE = 100 METERS

4

TEST SITE: DODGE CITY, KAN.
ALTITUDE: 3,700 FEET
TEMP: 78°F
REL HUMIDITY: 79%

ENGINE TEST-ANALYSIS

TEST NO. 1

TEST DATE: 10-10-67

TEST TIME: 10:00 A.M.

TEST NUMBER: 1

TEST ID: 100-100-100

TESTER IDENTIFICATION

OMEGA 116

TEST 78-633-001

RUN 31

DATE 6

FREQUENCY 1000 Hz

SPL 100 dB

FREQUENCY 2000 Hz

SPL 100 dB

FREQUENCY 4000 Hz

SPL 100 dB

FREQUENCY 8000 Hz

SPL 100 dB

FREQUENCY 16000 Hz

SPL 100 dB

FREQUENCY 32000 Hz

SPL 100 dB

FREQUENCY 64000 Hz

SPL 100 dB

FREQUENCY 128000 Hz

SPL 100 dB

FREQUENCY 256000 Hz

SPL 100 dB

FREQUENCY 512000 Hz

SPL 100 dB

FREQUENCY 1024000 Hz

SPL 100 dB

FREQUENCY 2048000 Hz

SPL 100 dB

FREQUENCY 4096000 Hz

SPL 100 dB

FREQUENCY 8192000 Hz

SPL 100 dB

FREQUENCY 16384000 Hz

SPL 100 dB

FREQUENCY 32768000 Hz

SPL 100 dB

FREQUENCY 65536000 Hz

SPL 100 dB

FREQUENCY 131072000 Hz

SPL 100 dB

FREQUENCY 262144000 Hz

SPL 100 dB

FREQUENCY 524288000 Hz

SPL 100 dB

FREQUENCY 1048576000 Hz

SPL 100 dB

FREQUENCY 2097152000 Hz

SPL 100 dB

FREQUENCY 4194304000 Hz

SPL 100 dB

FREQUENCY 8388608000 Hz

SPL 100 dB

FREQUENCY 16777216000 Hz

SPL 100 dB

FREQUENCY 33554432000 Hz

SPL 100 dB

FREQUENCY 67108864000 Hz

SPL 100 dB

FREQUENCY 134217728000 Hz

SPL 100 dB

FREQUENCY 268435456000 Hz

SPL 100 dB

TESTER IDENTIFICATION

OMEGA 116

TEST 78-633-001

RUN 31

DATE 6

FREQUENCY 1000 Hz

SPL 100 dB

FREQUENCY 2000 Hz

SPL 100 dB

FREQUENCY 4000 Hz

SPL 100 dB

FREQUENCY 8000 Hz

SPL 100 dB

FREQUENCY 16000 Hz

SPL 100 dB

FREQUENCY 32000 Hz

SPL 100 dB

FREQUENCY 64000 Hz

SPL 100 dB

FREQUENCY 128000 Hz

SPL 100 dB

FREQUENCY 256000 Hz

SPL 100 dB

FREQUENCY 512000 Hz

SPL 100 dB

FREQUENCY 1024000 Hz

SPL 100 dB

FREQUENCY 2048000 Hz

SPL 100 dB

FREQUENCY 4096000 Hz

SPL 100 dB

FREQUENCY 8192000 Hz

SPL 100 dB

FREQUENCY 16384000 Hz

SPL 100 dB

FREQUENCY 32768000 Hz

SPL 100 dB

FREQUENCY 65536000 Hz

SPL 100 dB

FREQUENCY 131072000 Hz

SPL 100 dB

FREQUENCY 262144000 Hz

SPL 100 dB

FREQUENCY 524288000 Hz

SPL 100 dB

FREQUENCY 1048576000 Hz

SPL 100 dB

FREQUENCY 2097152000 Hz

SPL 100 dB

FREQUENCY 4194304000 Hz

SPL 100 dB

FREQUENCY 8388608000 Hz

SPL 100 dB

FREQUENCY 16777216000 Hz

SPL 100 dB

FREQUENCY 33554432000 Hz

SPL 100 dB

FREQUENCY 67108864000 Hz

SPL 100 dB

FREQUENCY 134217728000 Hz

SPL 100 dB

FREQUENCY 268435456000 Hz

SPL 100 dB

TESTER IDENTIFICATION

PNULT 100

TEST 78-633-001

RUN 31

DATE 6

OCTAVE BAND SPL (dB)

PSIL (dB)

DASLA (dB)

OASPL (dB)

PNLT (PNBL)

FIGURE 4 NORMALIZED FARFIELD NOISE LEVELS

4 DISTANCE = 100 METERS

SOURCE/SUBJECT: 4-72 AIRCRAFT IN THE AFSCA 19 SUPERSONIC ENGINE TFW-1-A-1 FAR FIELD NOISE

OPERATION: 70% RPM, ENGINES RUN, SINGLE ENGINE, SURFACE, SUPERSONIC

METECROLU, TX TEST 77-833-901

TEMP = 15 C BAR PRESS = 760 MM HG REL HUMID = 70 %

PAGE 6

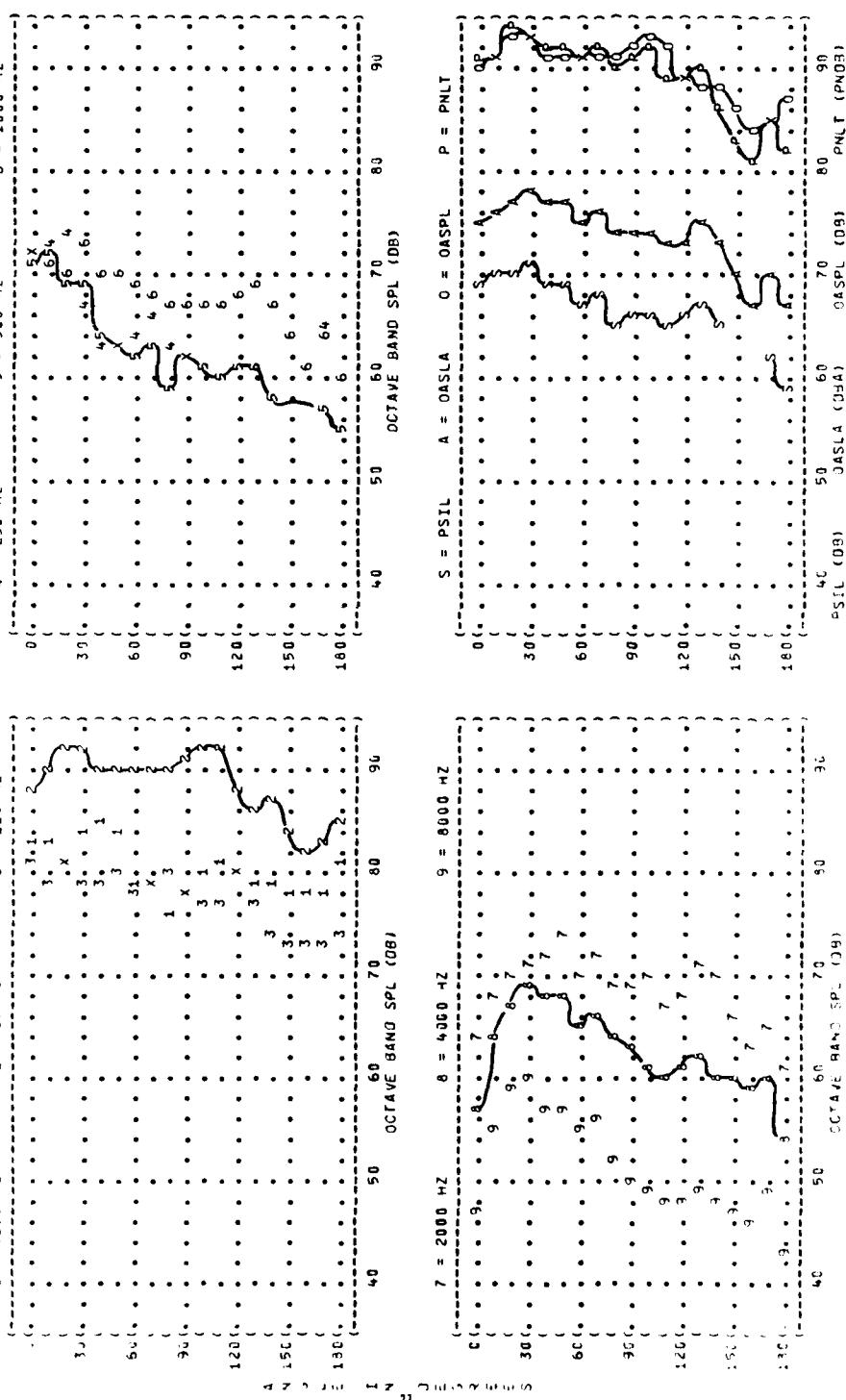


FIGURE 4 NORMALIZED FARFIELD NOISE LEVELS

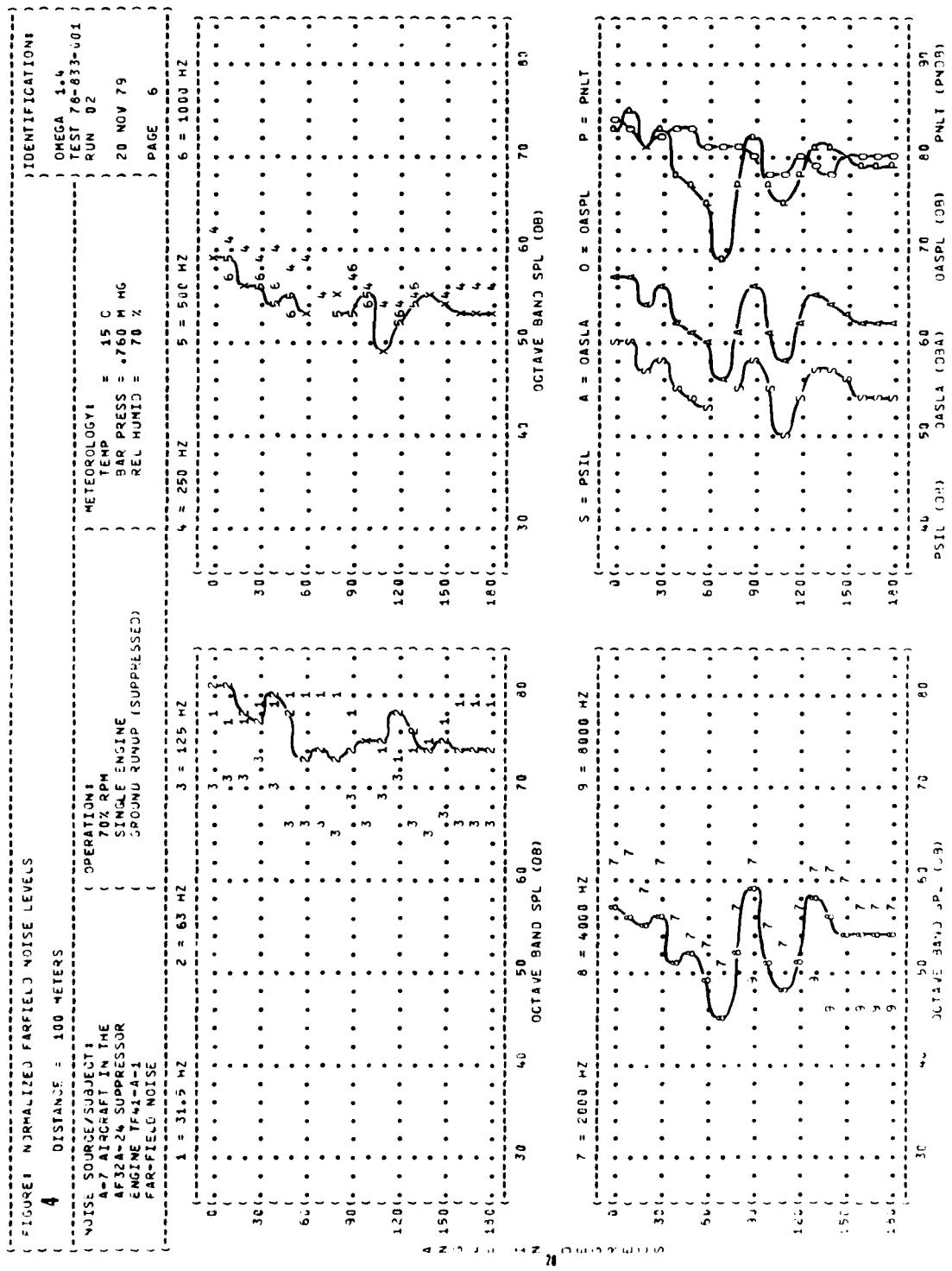
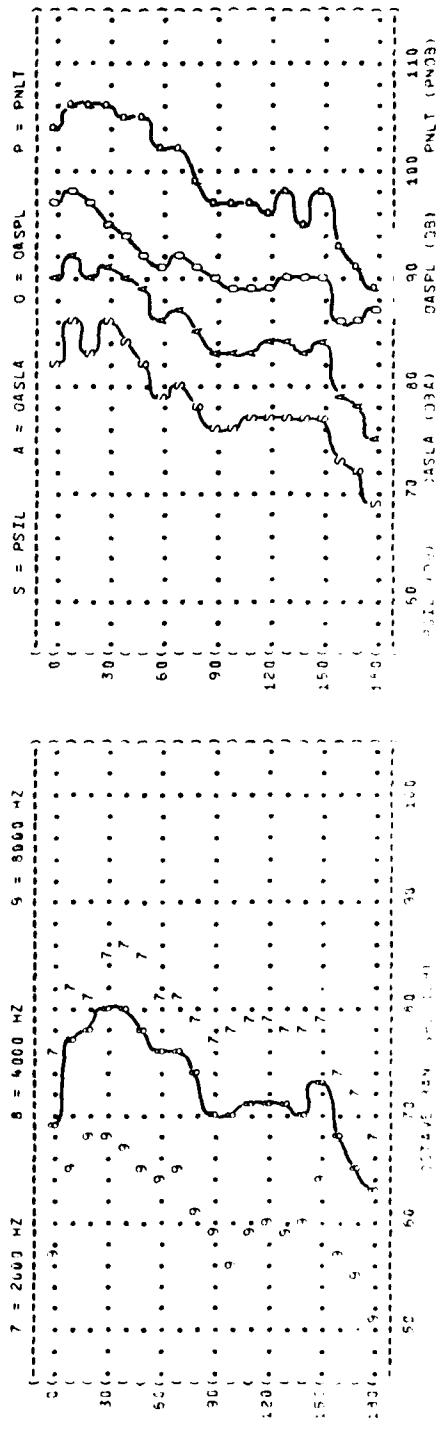
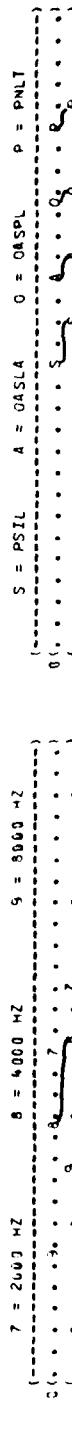
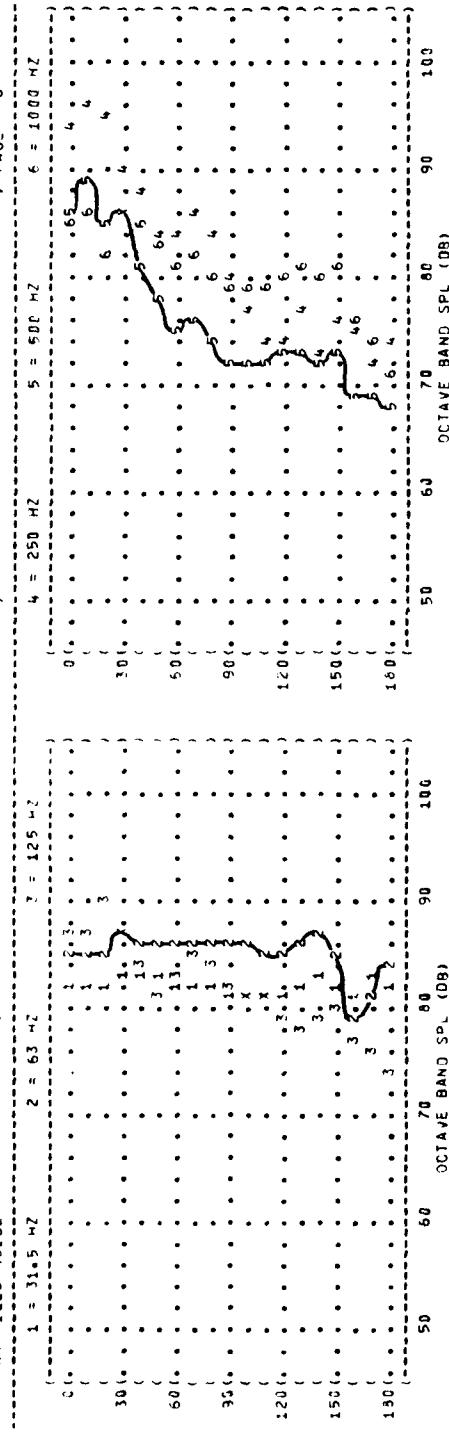


FIGURE 1 NORMALIZED PARTIAL NOISE LEVEL

4 DISTANCE = 100 METERS

NOISE SOURCE SUBJECT:
 A-7G AIRCRAFT IN THE
 AF32-19 SUPPRESSOR
 ENGINE TF41-A1
 FAR FIELD NOISE

OPERATING
 65% RPM, ENGINE R-NP
 SURFACE ENGINE
 SUPPORTING SECOND R-NP



TEST 77-833-001

RUN 03

20 NOV 79

PAGE 6

IDENTIFICATION

OMEGA 104

TEST 77-833-001

RJN 03

20 NOV 79

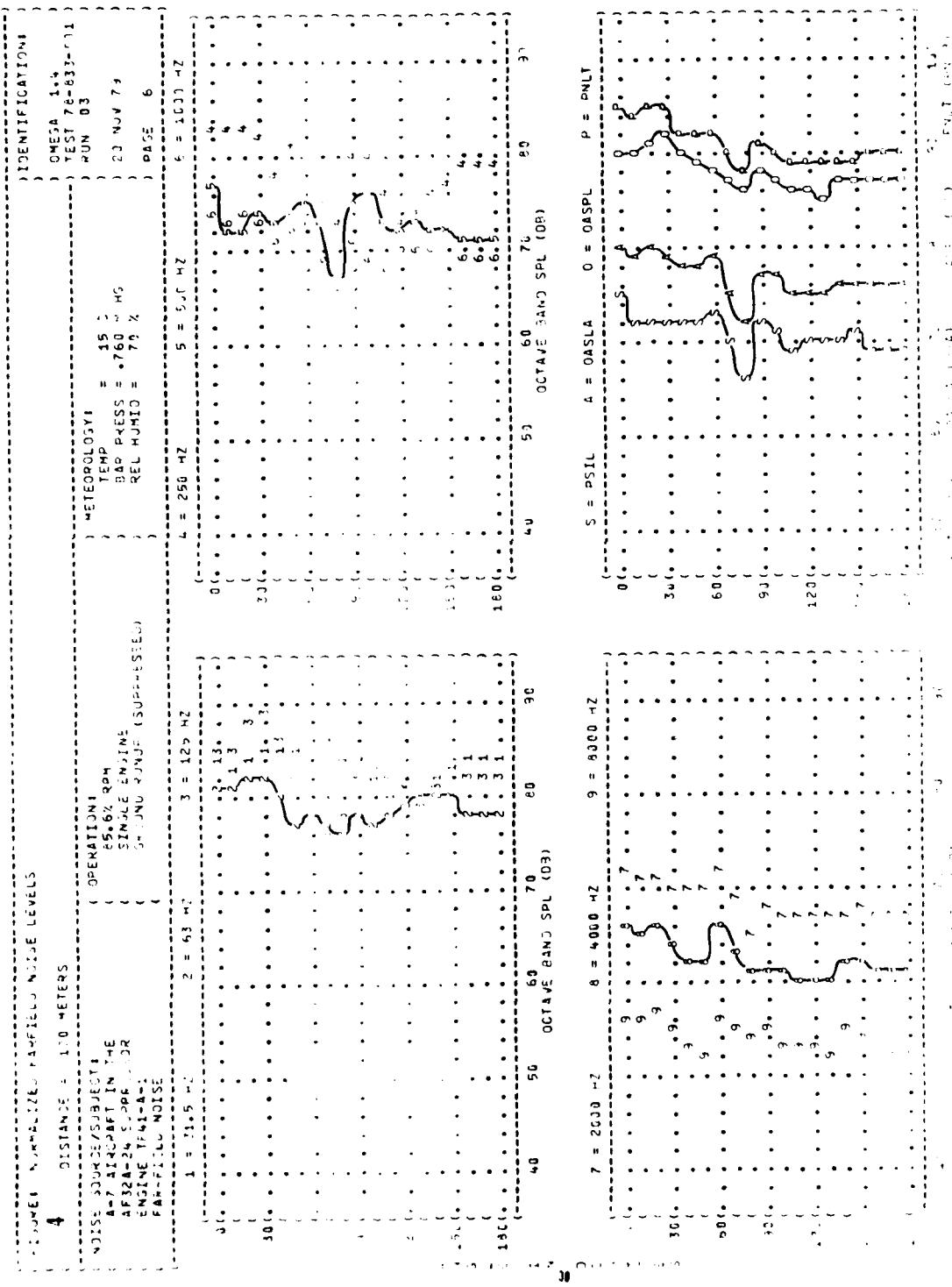
PAGE 6

REL HUMID. = 70 %

BAR PRESS. = .760 M HG

TEMP. = 15 C

METEROLOGY



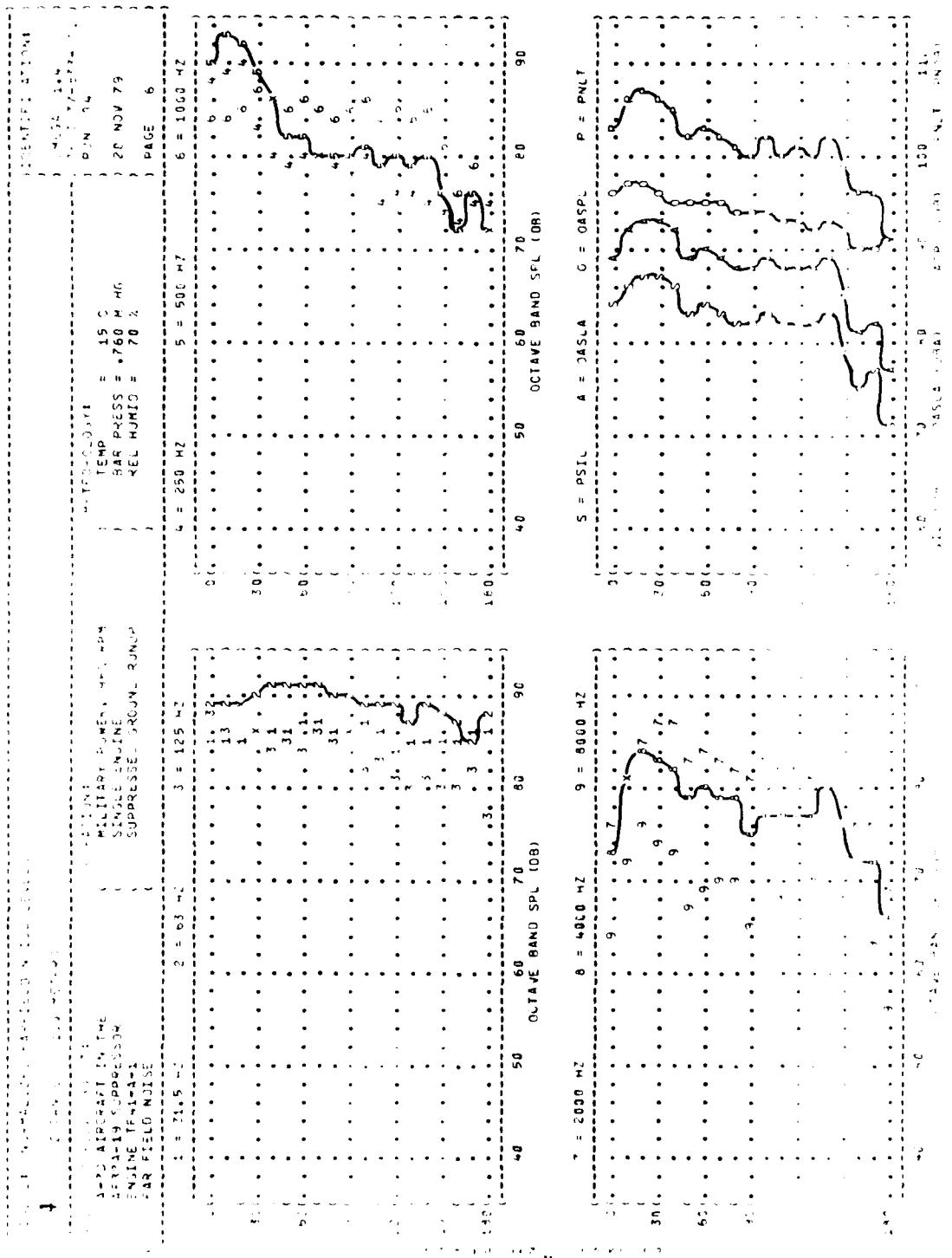
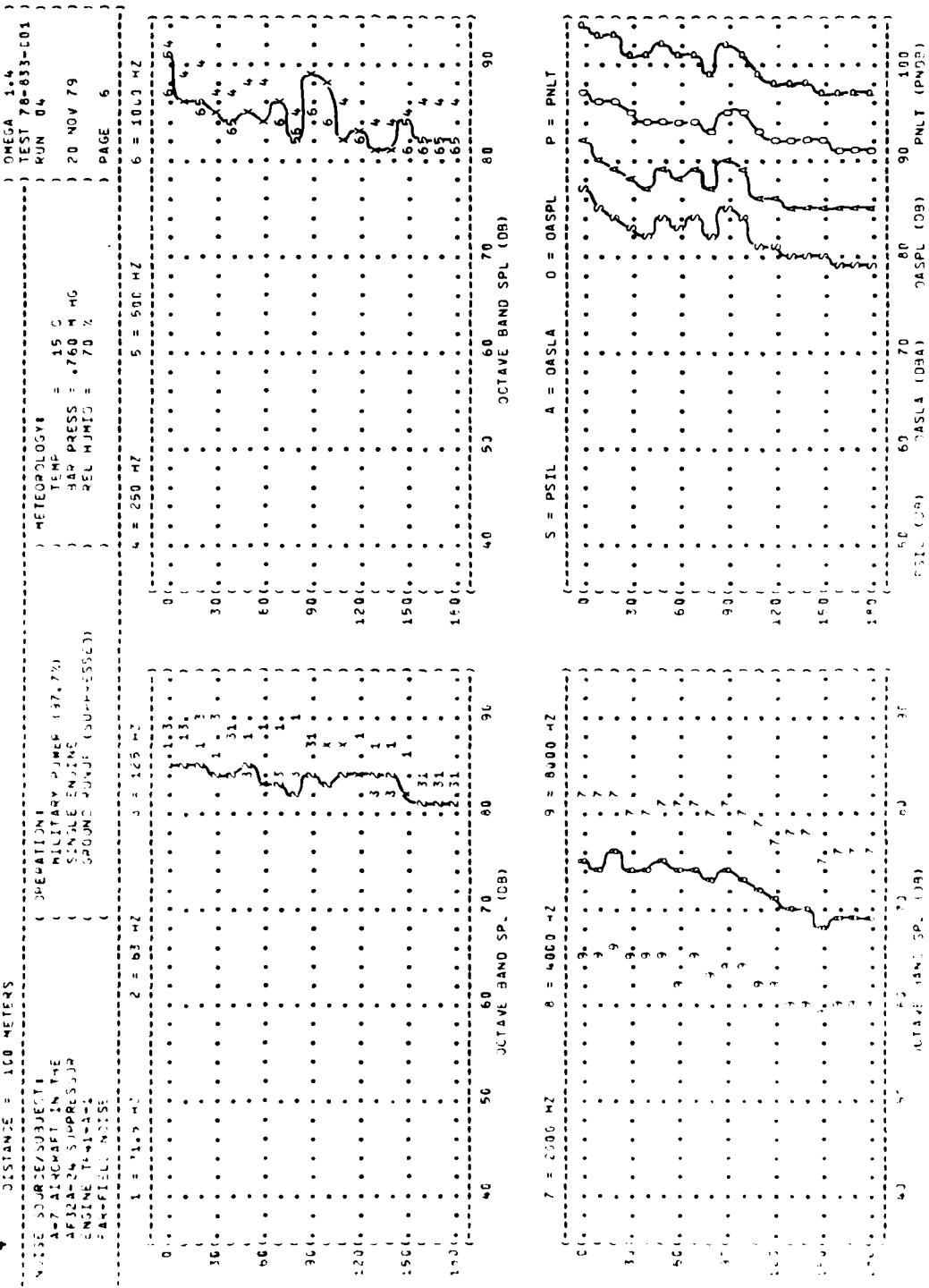


FIGURE 1 NORMALIZED PARALLEL NOISE LEVELS



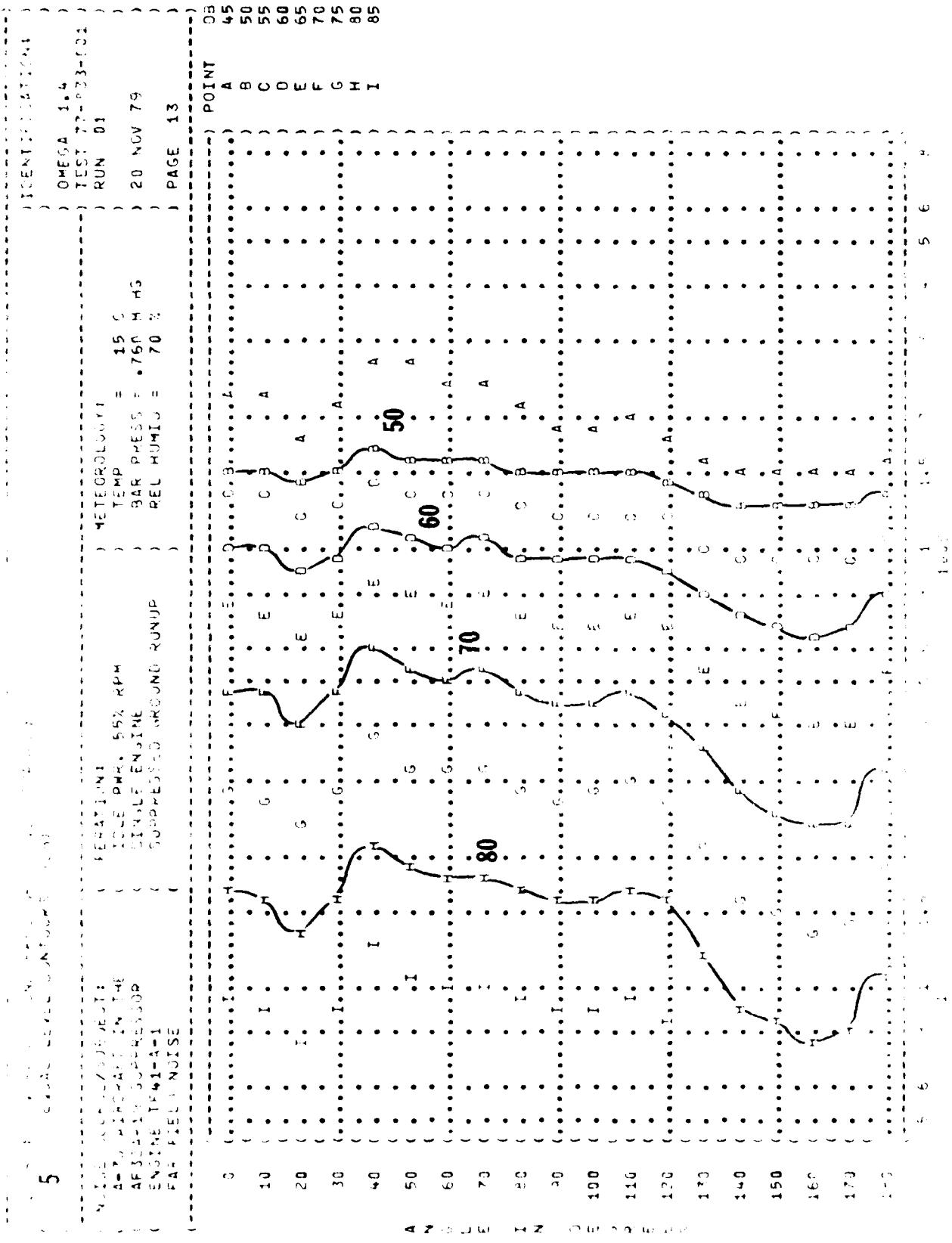


FIGURE 1 OVERALL SOUND PRESSURE LEVEL (dB) EQUAL LEVEL CONTOURS

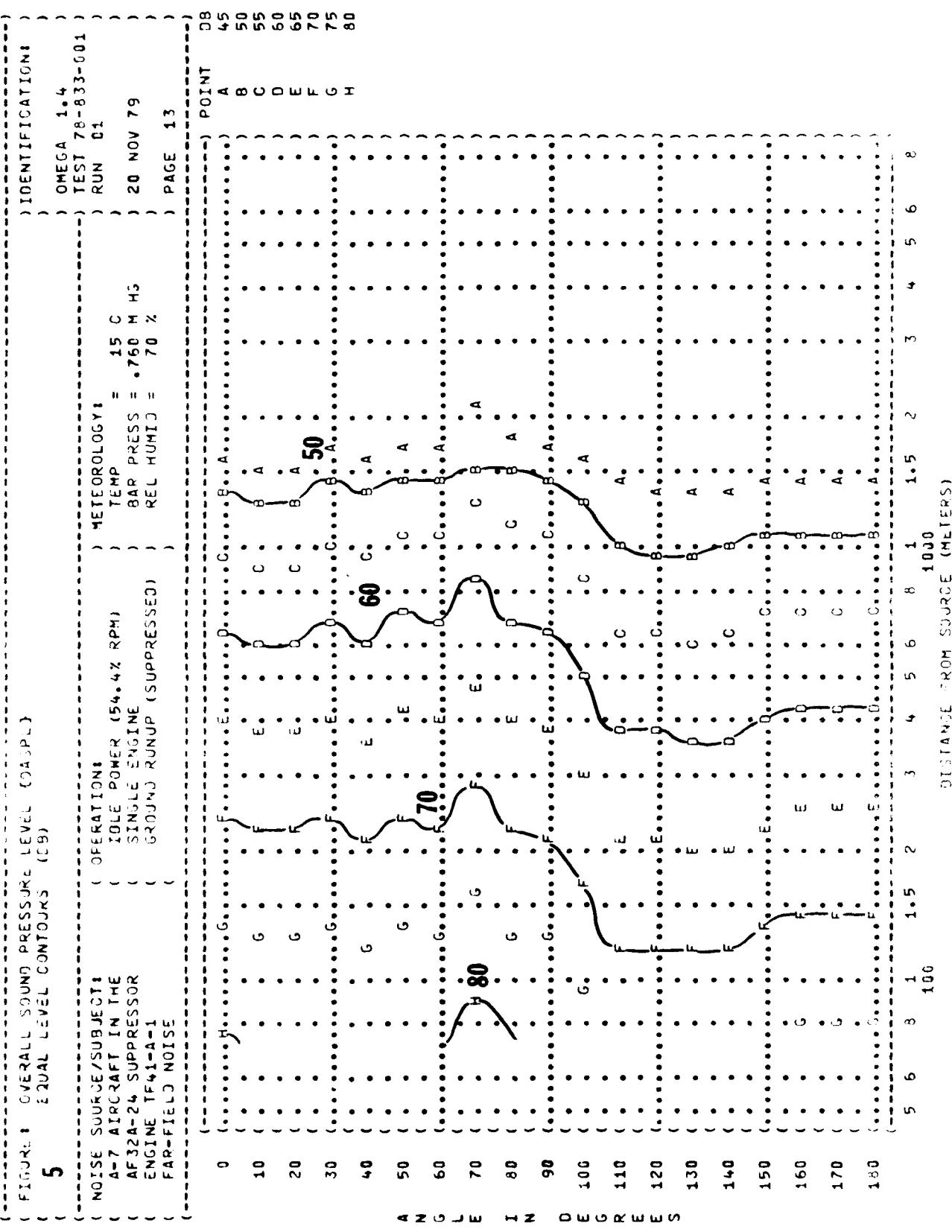


FIGURE: OVERALL SOUND PRESSURE LEVEL EQUAL LEVEL CONTOURS (0dB)

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NOISE SOURCE/SUBJECT:
A-7D AIRCRAFT IN THE
AF 32A-19 SUPPRESSOR
ENGINE IF41-A-1
FAR FIELD NOISE

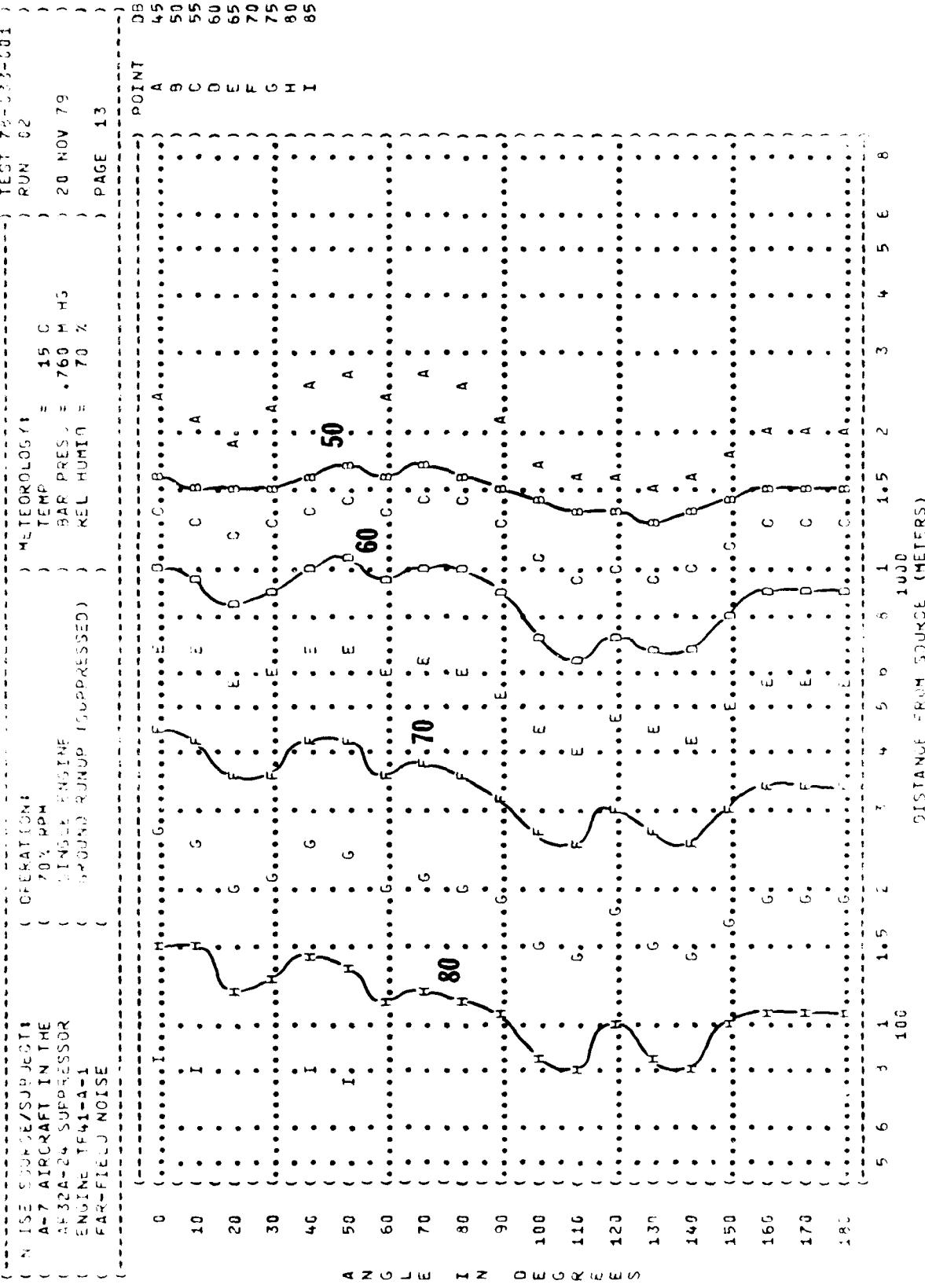
OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

)-----)
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 Hg
) REL HUMID = 70 %
)-----)
) UMEGA 1.0⁴
) TEST 77-833-001
) RUN 02
) 20 NOV 79
) PAGE 13

The graph displays six data series representing different point values (50, 60, 70, 80, 90, 100) plotted against distance from a source. The x-axis represents distance in meters, ranging from 5 to 100. The y-axis represents point values, ranging from 0 to 95. The curves show a general decrease in point value as distance increases, with some local fluctuations.

Distance (m)	50	60	70	80	90	100
5	85	80	75	70	65	60
10	80	75	70	65	60	55
20	75	70	65	60	55	50
30	70	65	60	55	50	45
40	65	60	55	50	45	40
50	60	55	50	45	40	35
60	55	50	45	40	35	30
70	50	45	40	35	30	25
80	45	40	35	30	25	20
90	40	35	30	25	20	15
100	35	30	25	20	15	10
110	30	25	20	15	10	5
120	25	20	15	10	5	0
130	20	15	10	5	0	0
140	15	10	5	0	0	0
150	10	5	0	0	0	0
160	5	0	0	0	0	0
170	0	0	0	0	0	0
180	0	0	0	0	0	0

FIGURE 5: OVERALL SOUND PRESSURE LEVEL (dB) EQUAL LEVEL CONTOURS



{ FIGURE 5 EQUAL LEVEL CONTOURS (DB)

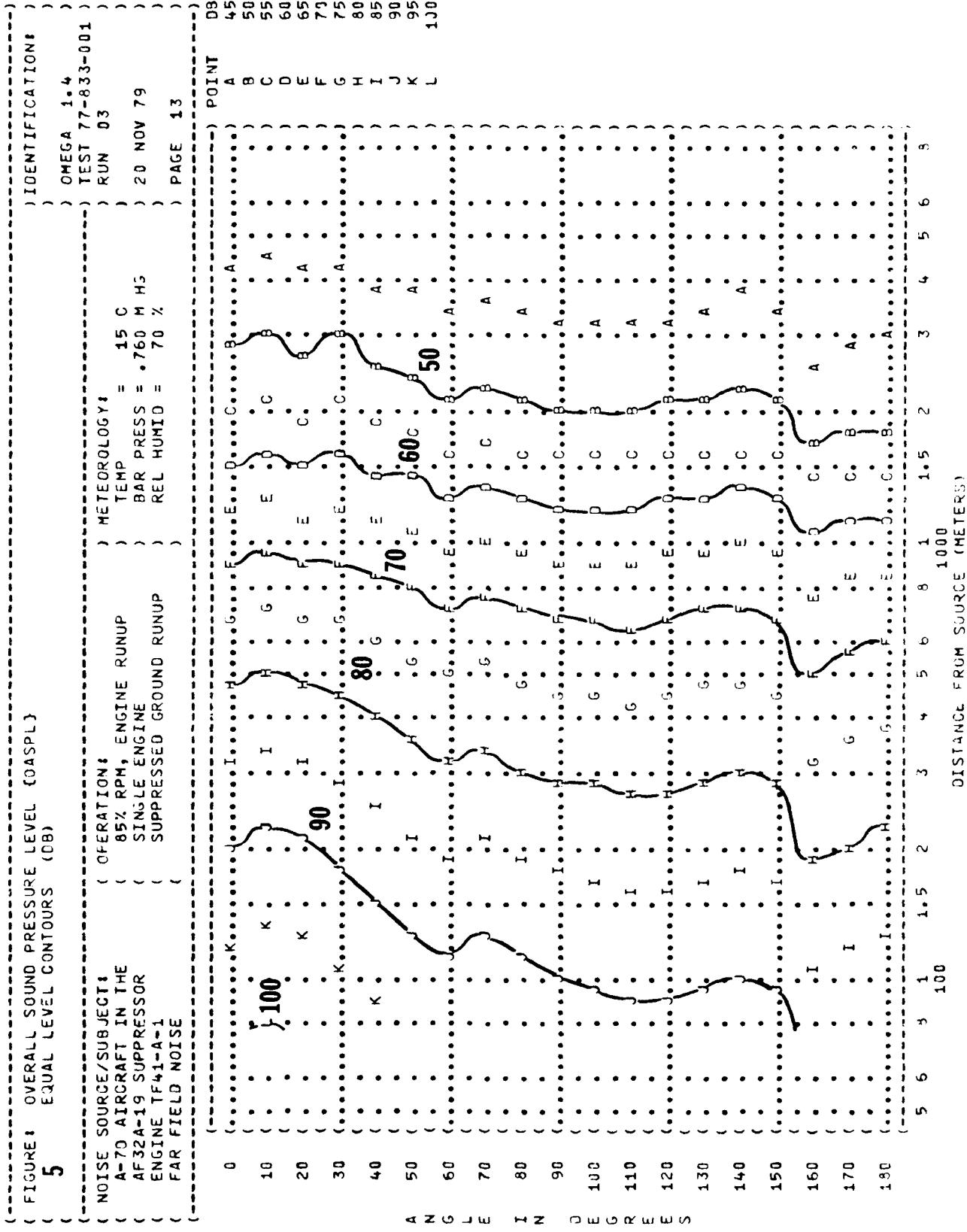


FIGURE 5. INTERNAL SOUND PRESSURE LEVELS (SAMPLE)

5

TEST SUBJECT: (OPERATION
IN 7' AIR DRAFT IN THE
AF524-2L SUPPRESSOR
ENGINE TFL41-A-1
CART-FIELD NOISE)

IDENTIFICATION:
OMEGA 2000
TEST 7-23-73-024
RUN 63
20 NUV 73
PAGE 13

ATMOSPHERE:
TEMP = 15°C
BAR PRESS = .76, uHg
REL HUMID = 71 %

POLARISATION

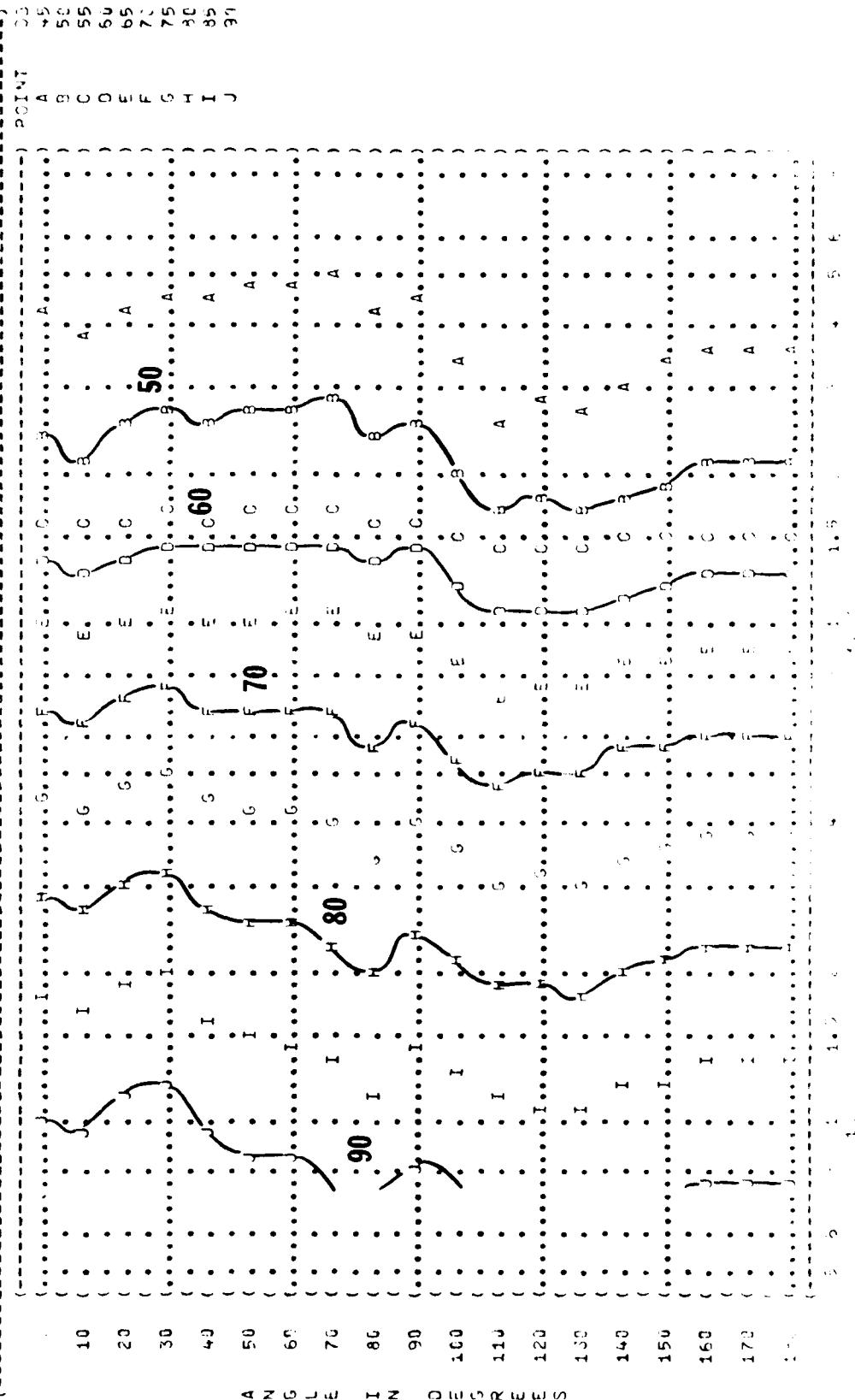
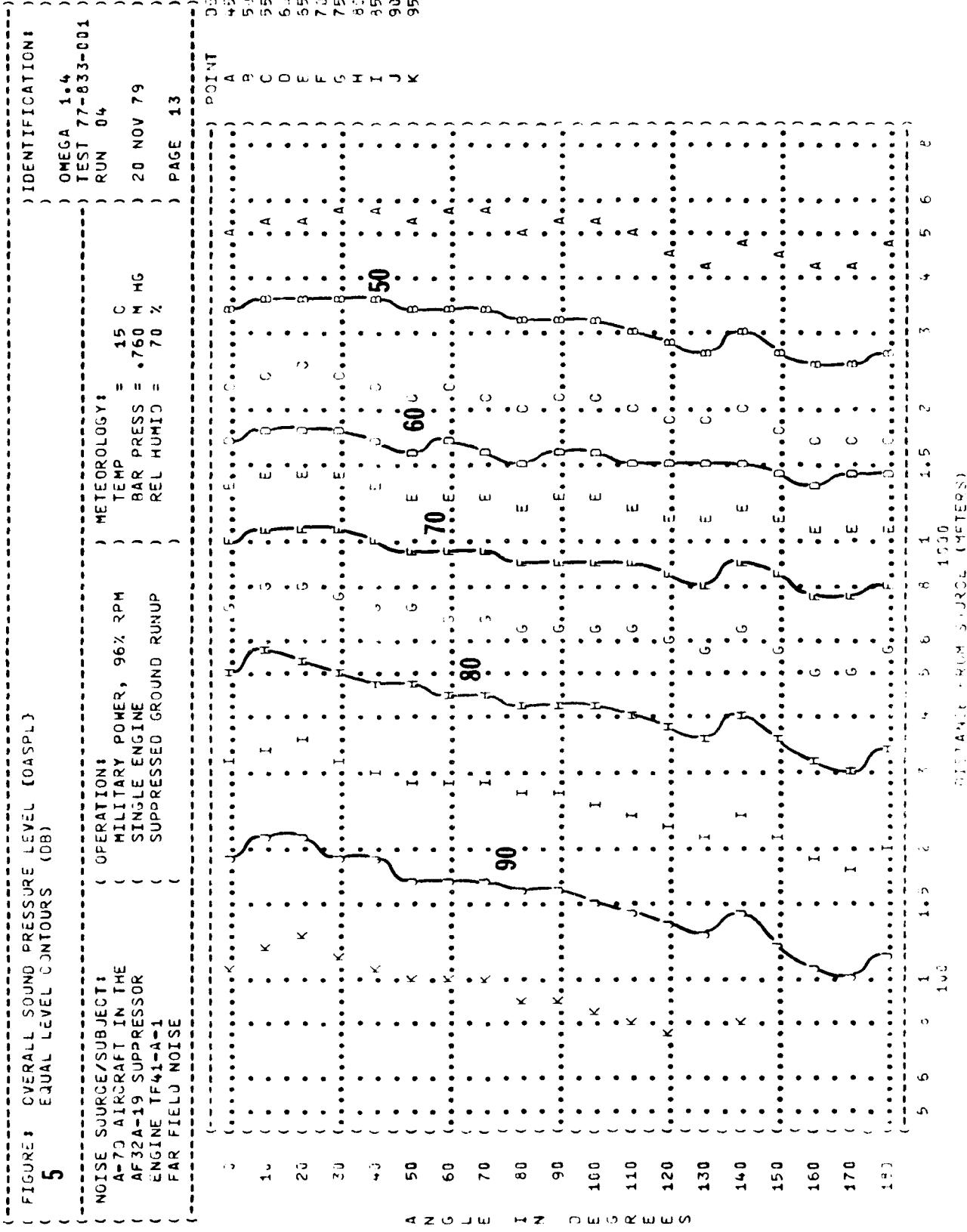


FIGURE 8 OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS (dB)



5
NOTICE SUBJECT:
AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATIONS:
MILITARY POWER (97.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 79 %

TEST 76-333-301

RUN 04

20 NOV 79

PAGE 13

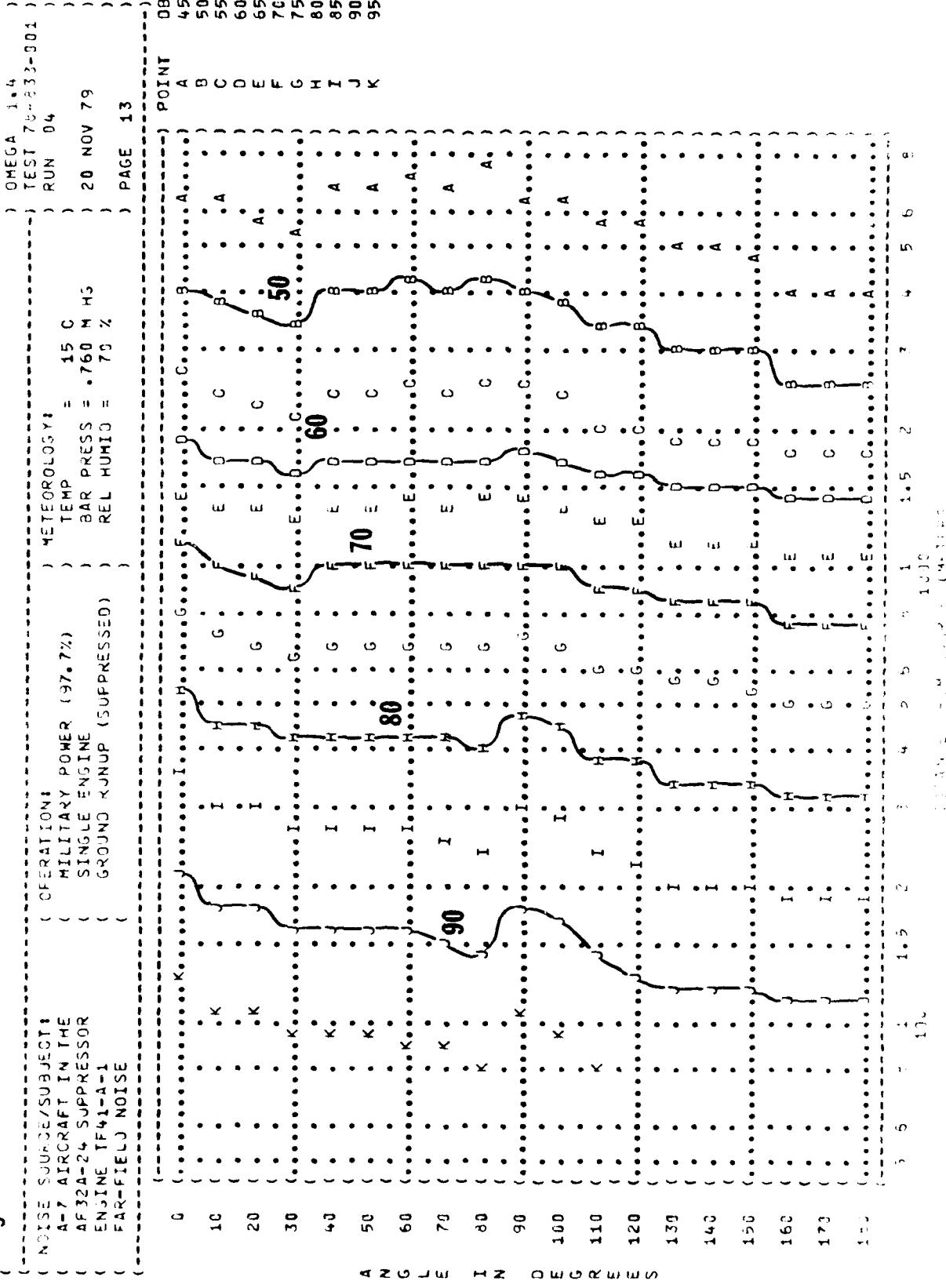


FIGURE 6 C-WEIGHTED OVERALL SOUND LEVEL (DBC)
EQUAL LEVEL CONTOURS (DBC)

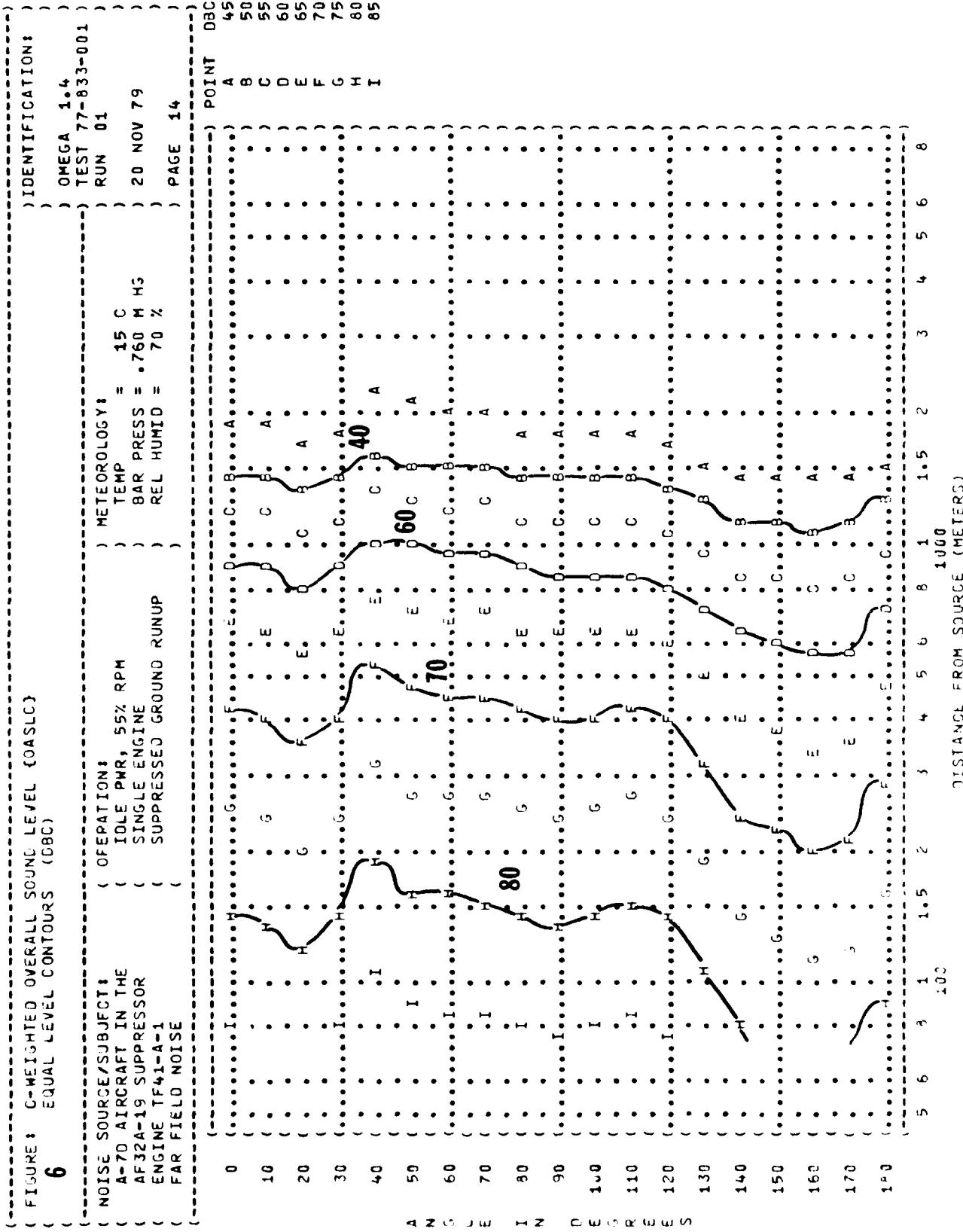


FIGURE 6 C-WEIGHTED OVERALL SOUND LEVEL (CASC)
EQUAL LEVEL CONTOURS (LBC)

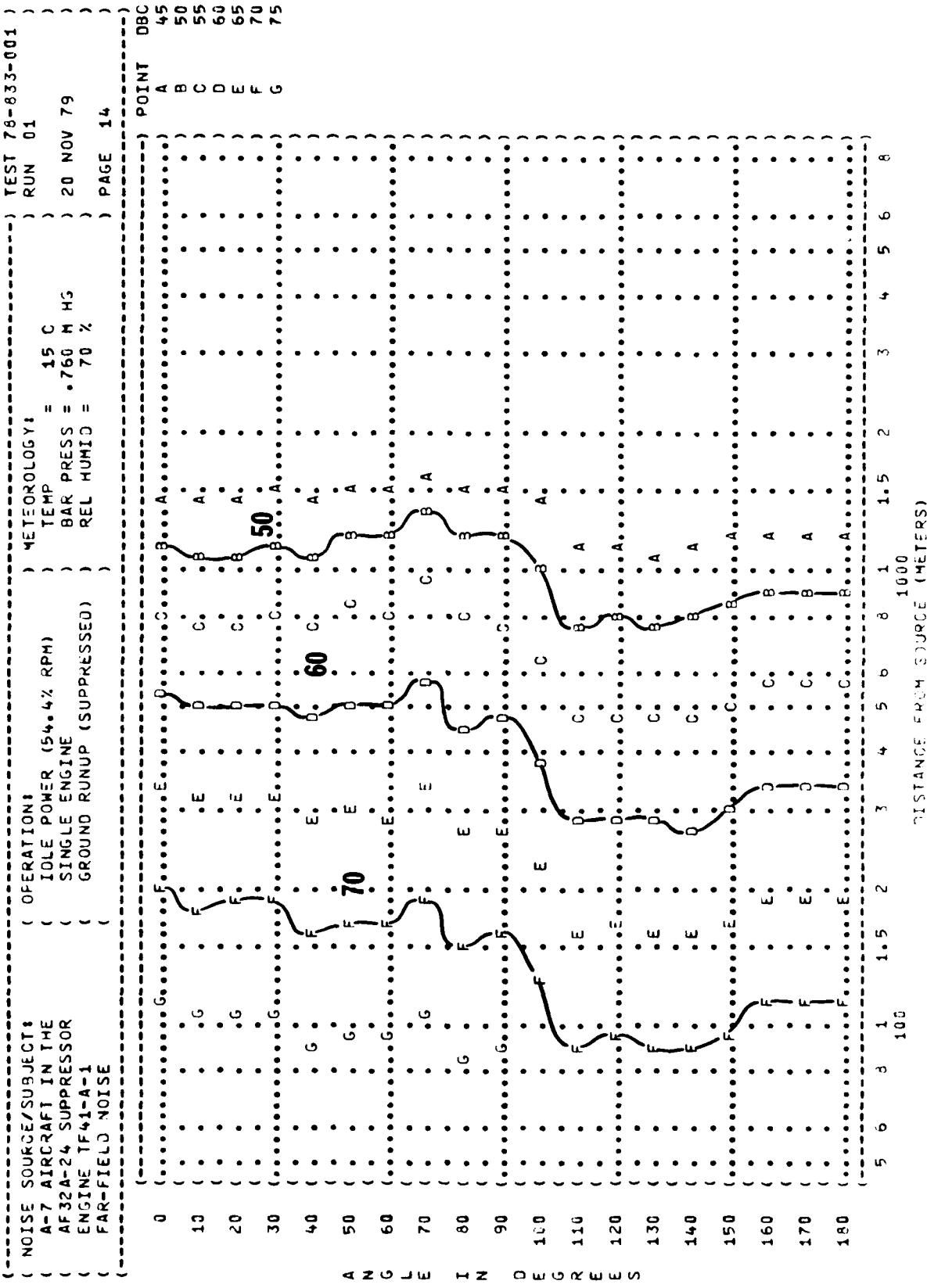


FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OBC)
EQUAL LEVEL CONTOURS (OBC)

6

NOISE SOURCE/SUBJECT: (OPERATION:
A-70 AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE)

(70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP)

(METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %)

TEST 77-833-001
RUN 62
PAGE 14

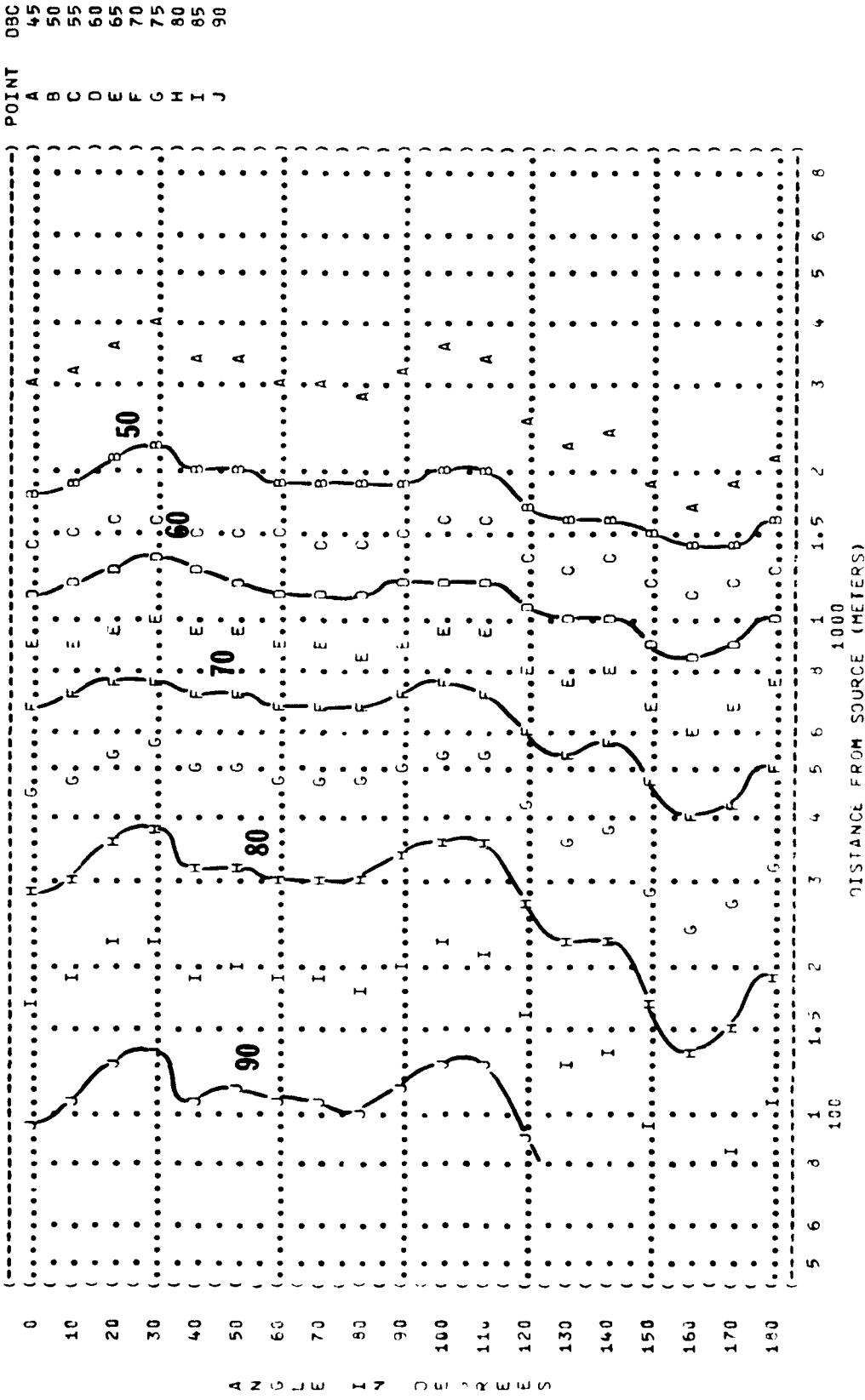
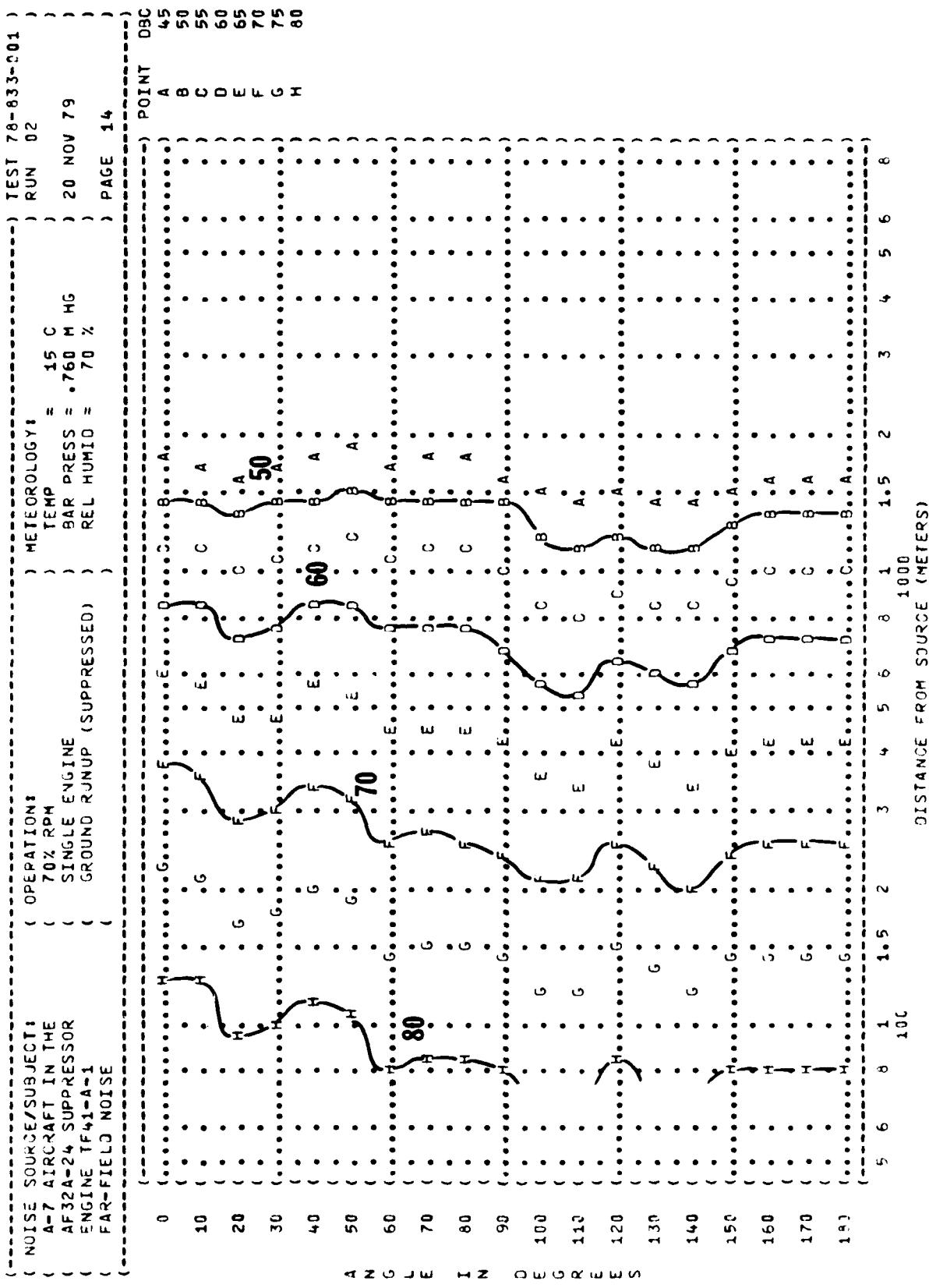


FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (OBC)

6



(FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 (EQUAL LEVEL CONTOURS (OBC)
6

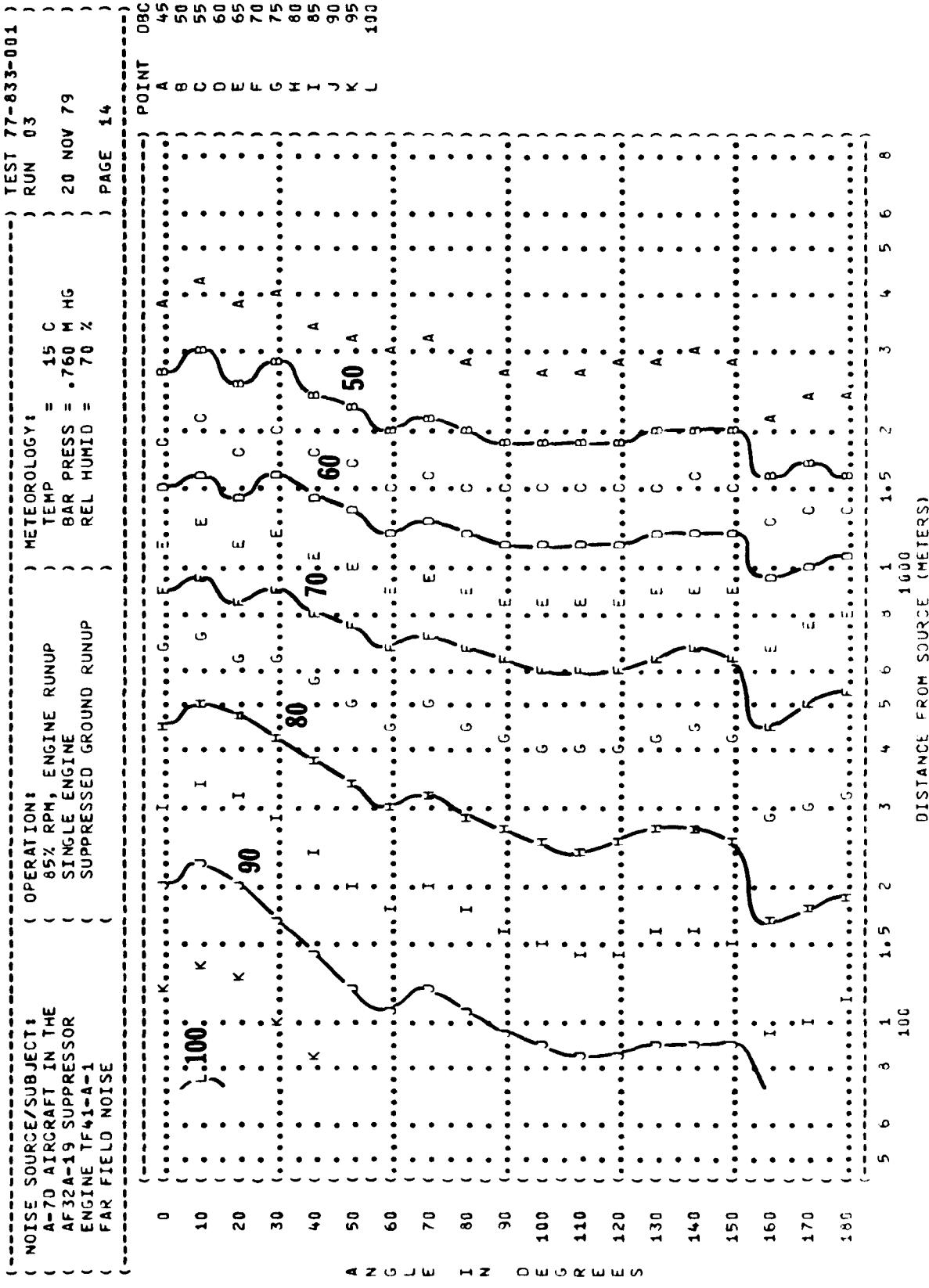


FIGURE 1 - WEIGHTED OVERALL SOUND LEVEL (WASL)
EQUAL LEVEL CONTOURS (EBC)

OPERATION:	
NUISSE SOURCE/SUBJECT:	(A-7 AIRCRAFT IN THE AF52A-24 SUPPRESSOR ENGINE, TF-1-A-1 FAB-FETED NOTES:
	(35.6% RP 1
	(SINGLE ENGINE GROUND RUNUP

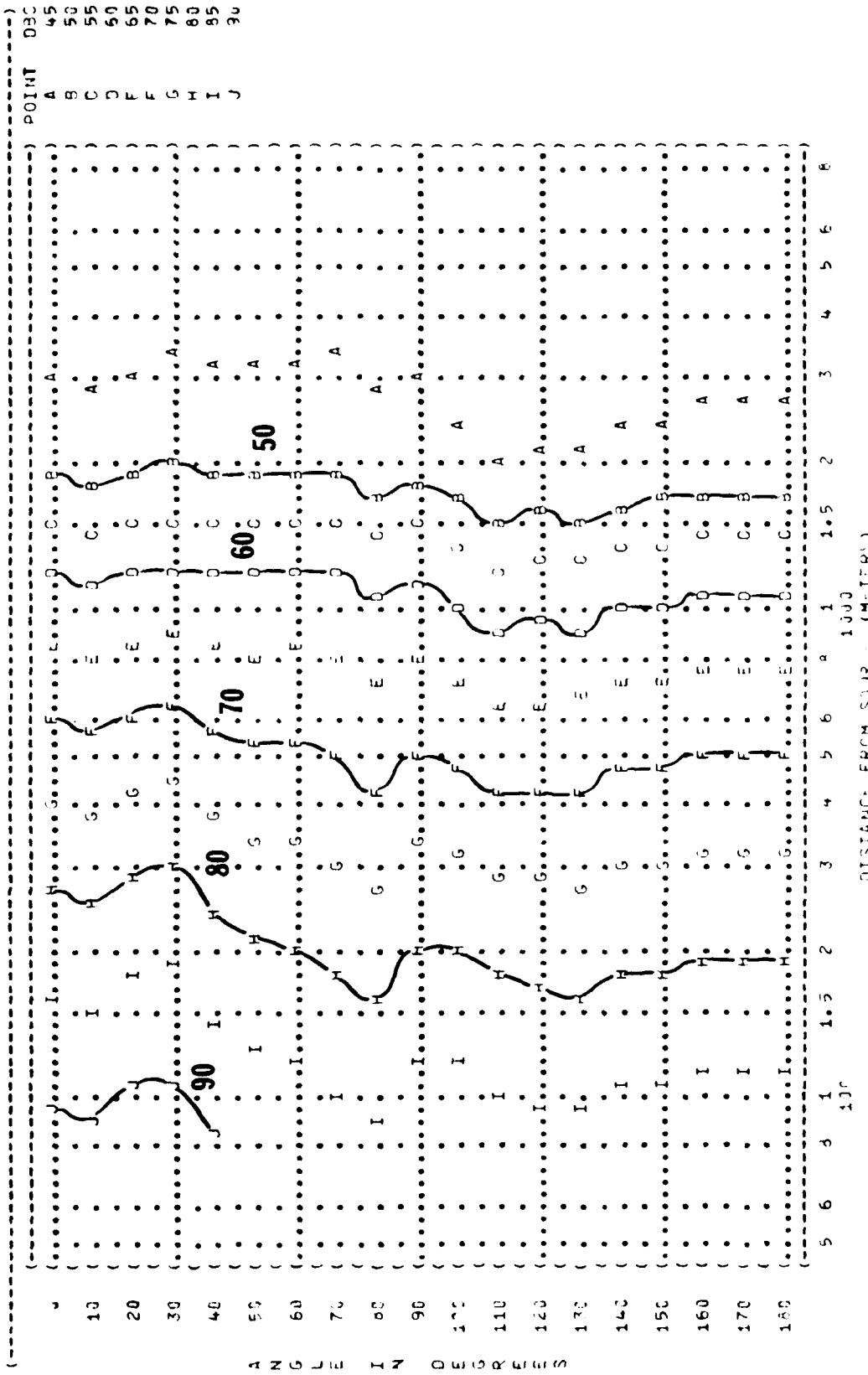
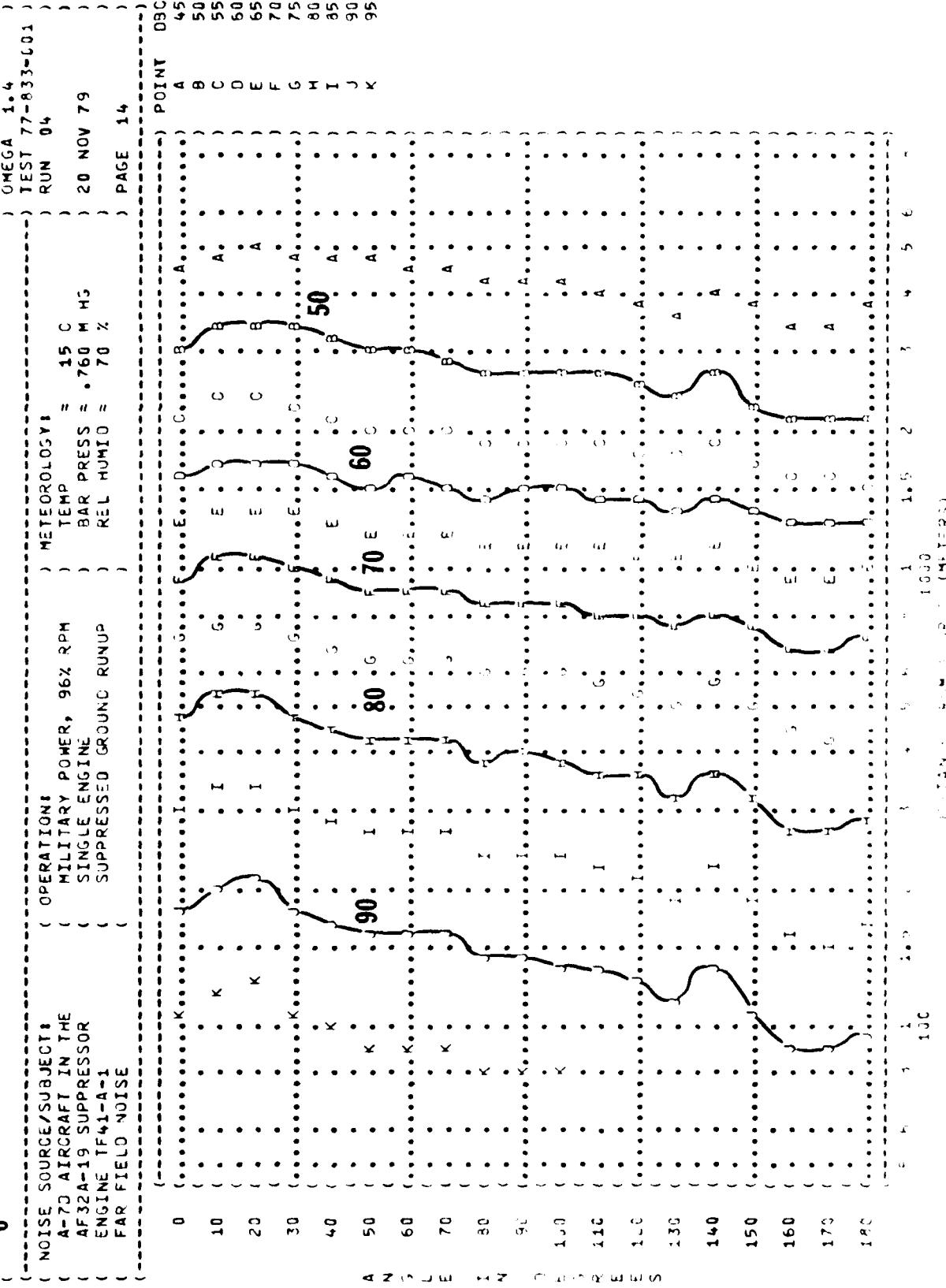


FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (dB) EQUAL LEVEL CONTOURS (dB)

6



RECORDED BY: R. L. COOPER
TESTED BY: R. L. COOPER

1000 (MILTE 25)

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IDENTIFICAZIONI

NOTICE SUBJECT
A-7 AIRCRAFT IN THE
AF 32A-24 SUPPRESSOR
ENGINE T642-A-1
EAS-ETI IN NOISE

OPERATIONS
MILITARY POWER (47.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY
TEMP
BAR PRESS
REL HUMID

20 NOV 79
PAGE 14

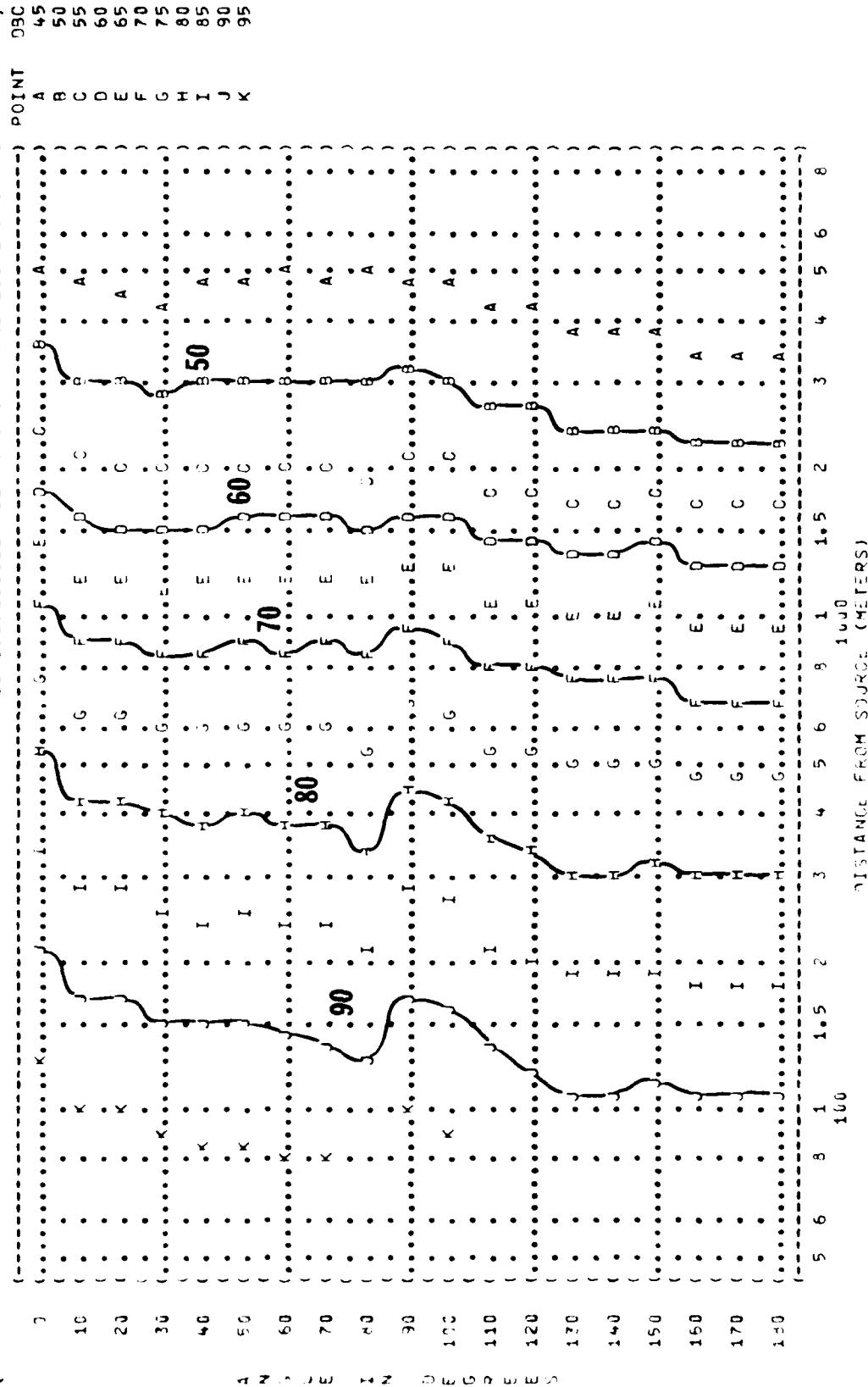


FIGURE 1: A-WEIGHTED OVERALL SOUND LEVEL (OASL)
EQUAL LEVEL CONTOURS (EBCA)

FIGURE 1 A-WEI, REFID OVERALL SOURCE LEVEL (ASLA)
 EQUAL LEVEL CONTOURS (EBA)
 7
 NOISE SOURCE/SUBJECT: A-7D AIRCRAFT IN THE AF32A-19 SUPPRESSOR ENGINE TF41-A-1 FAR FIELD NOISE
 OPERATION: IDLE PWR, 55% RPM SINGLE ENGINE SUPPRESSED GROUND RUNUP
 METEOROLOGY: TEMP = 15 C BAR PRESS = .761 Hg REL HUMID = 70 %
 IDENTIFICATION: OMEGA 1.4 TEST 77-833-001
) RUN 01) 20 NOV 79) PAGE 15

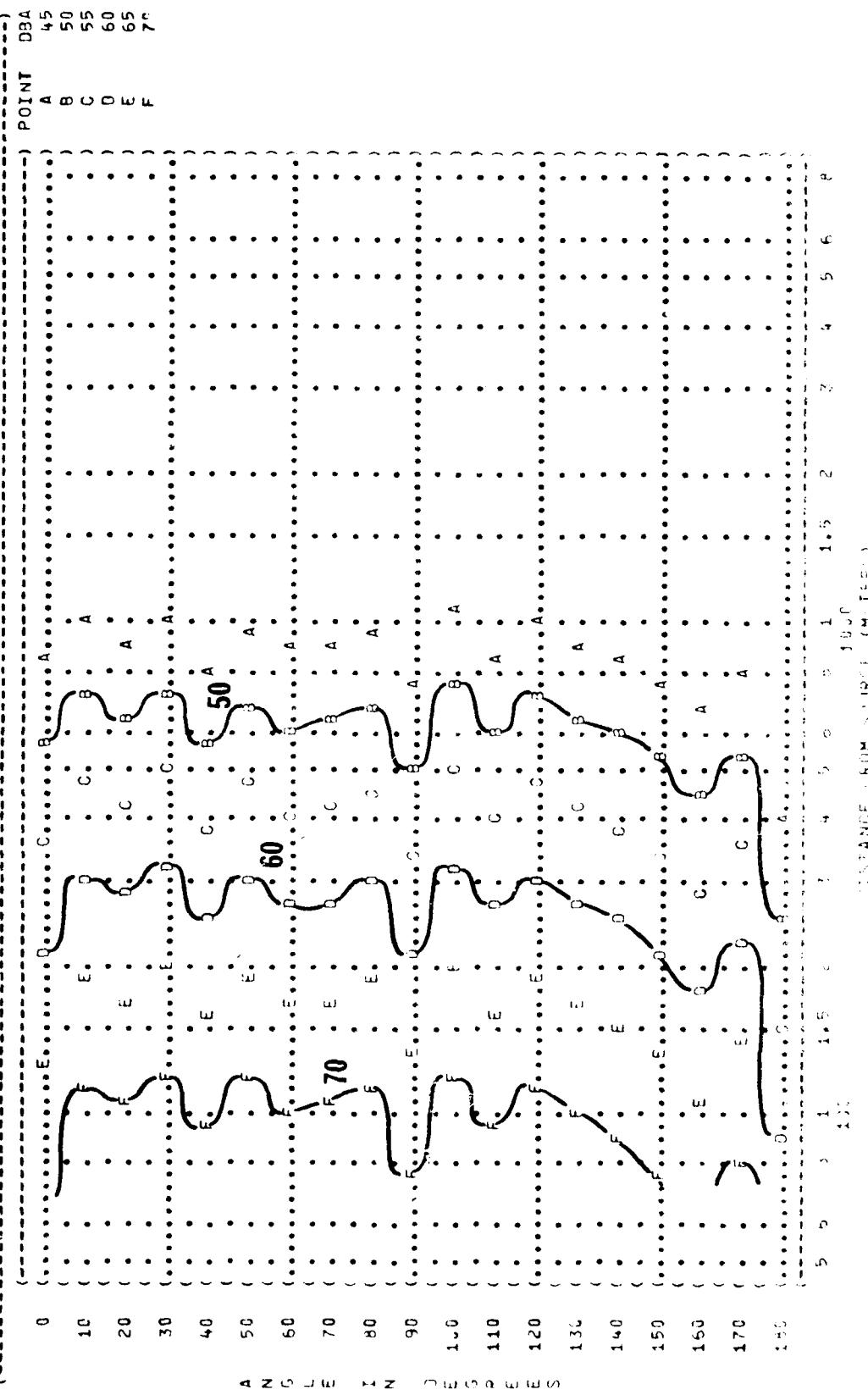
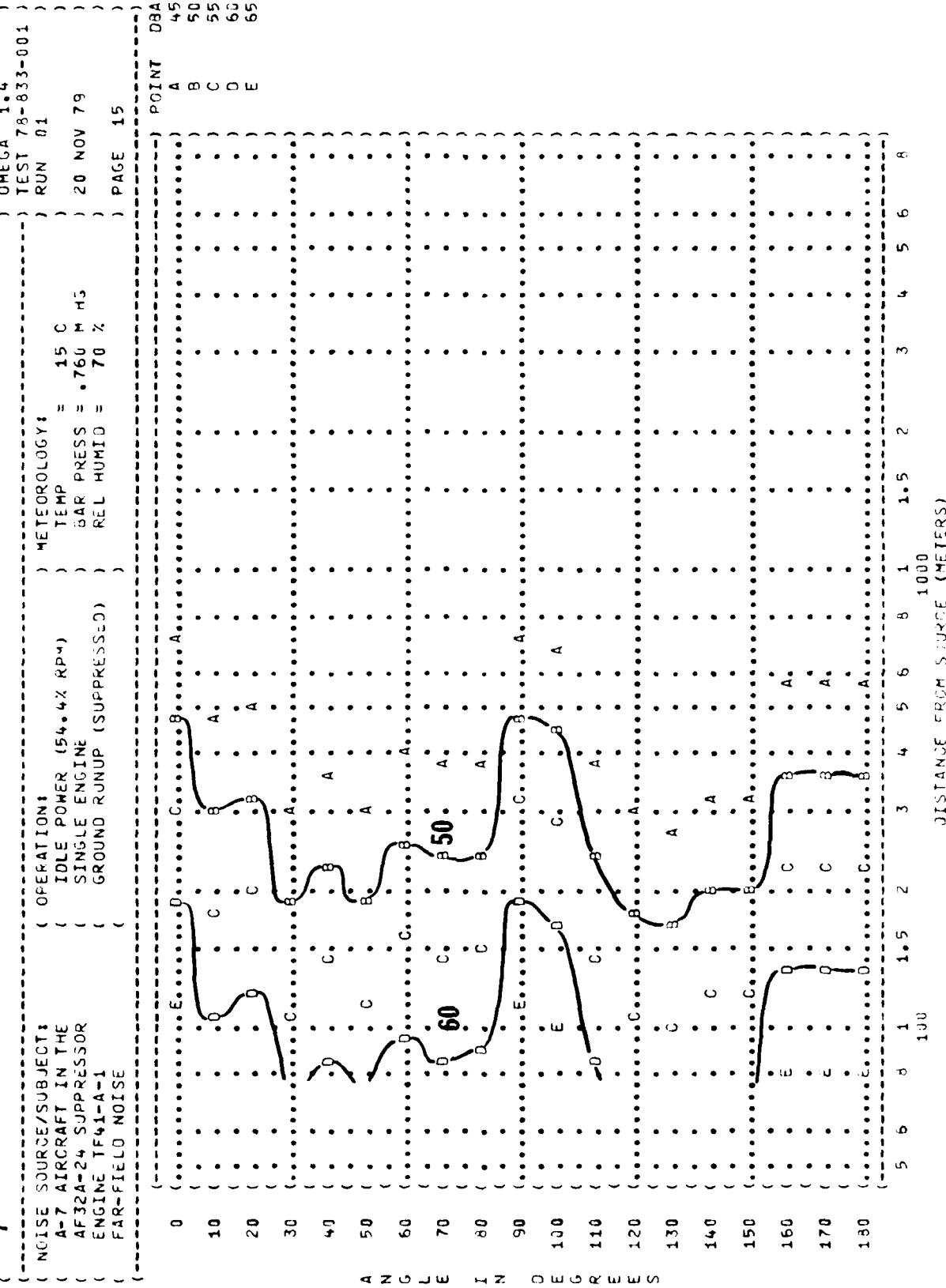
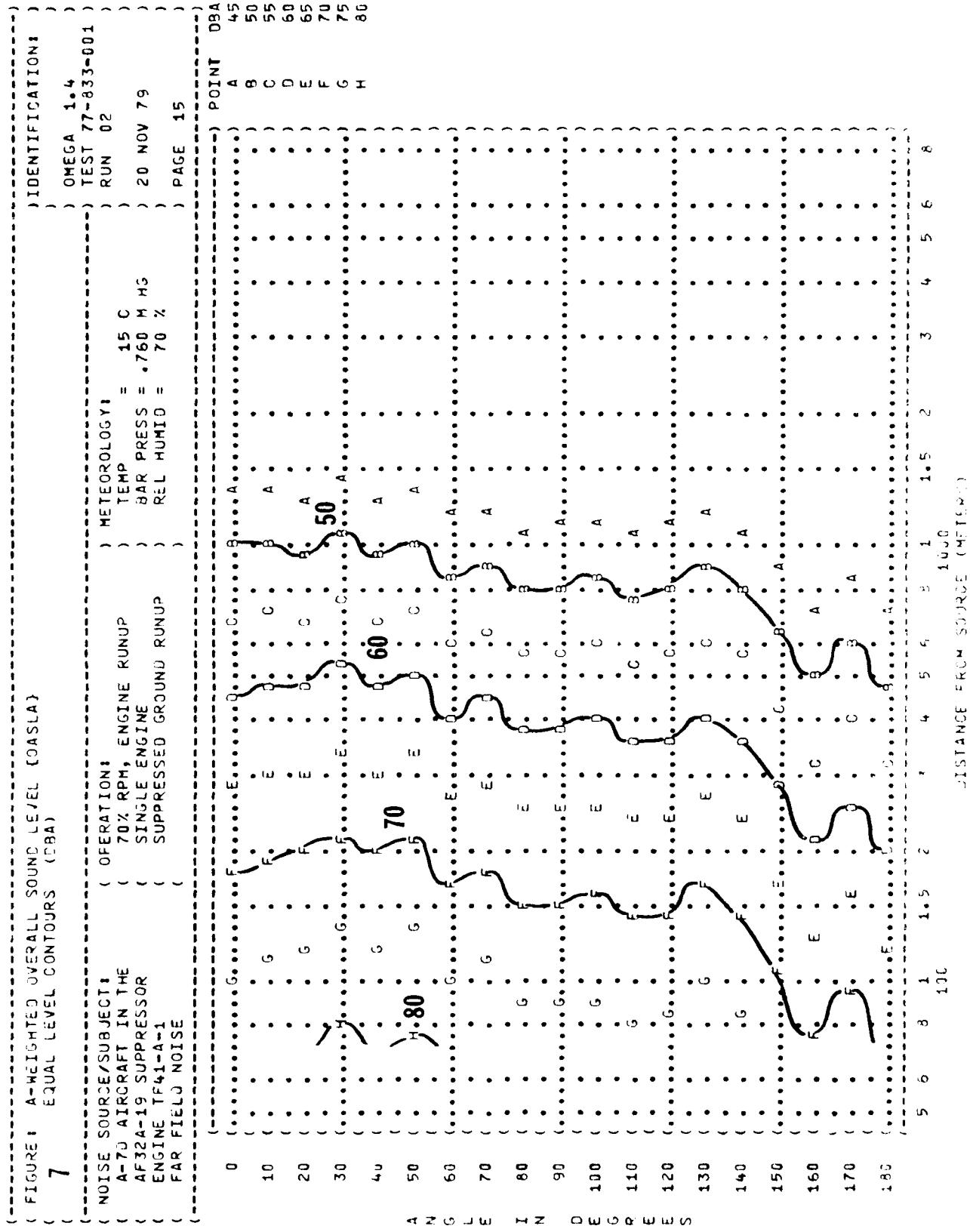


FIGURE : A-WEIGHTED OVERALL SOUND LEVEL (DBA)
EQUAL LEVEL CONTOURS (DBA)

7



(FIGURE 1 A-WEIGHTED OVERALL SOUND LEVEL (DBA)
 7 EQUAL LEVEL CONTOURS)



(FIGURE 7 A-WEIGHTED OVERALL SOUND LEVEL (DBA)
 EQUAL LEVEL CONTOURS (DBA)

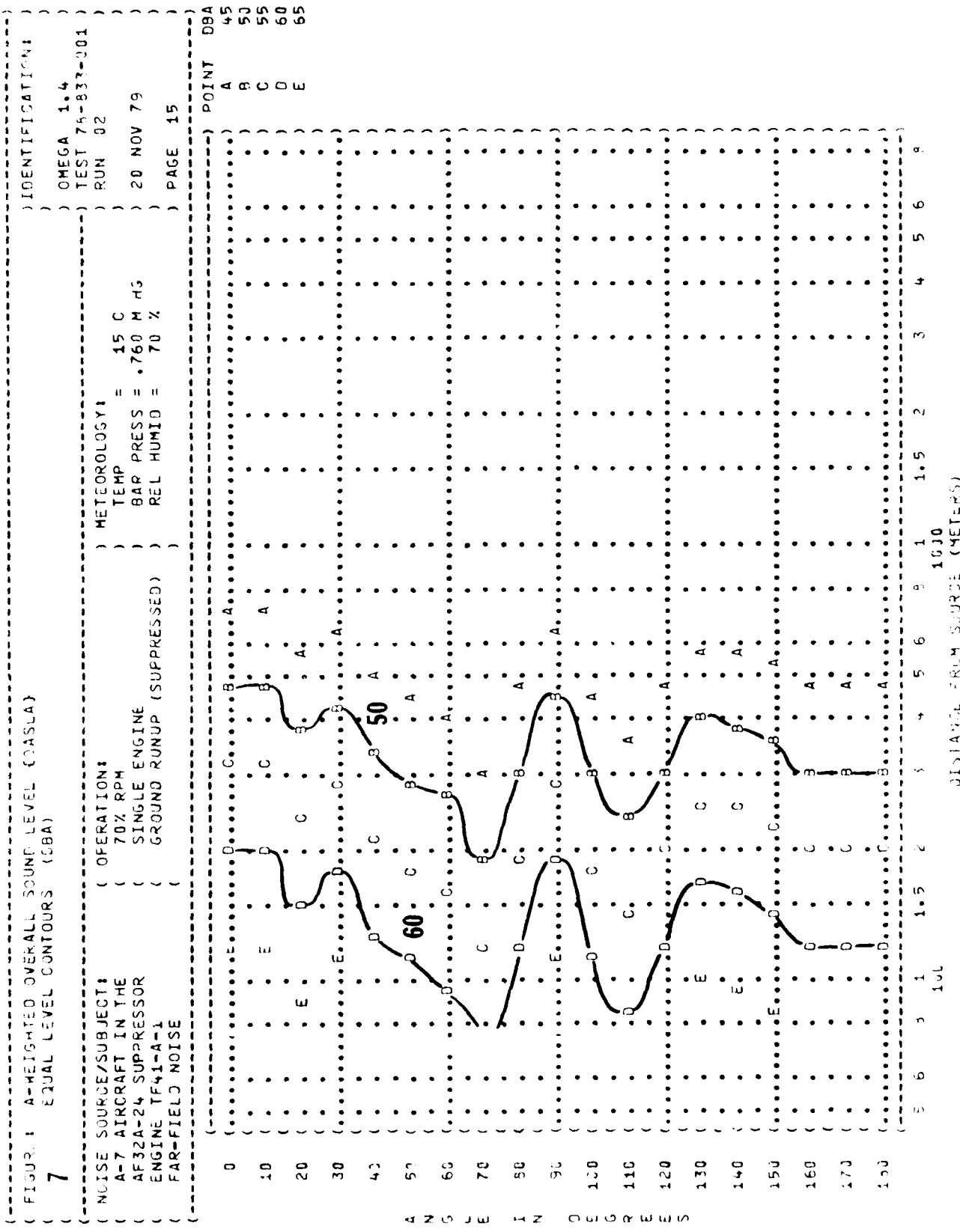


FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (DBA)
EQUAL LEVEL CONTOURS
7

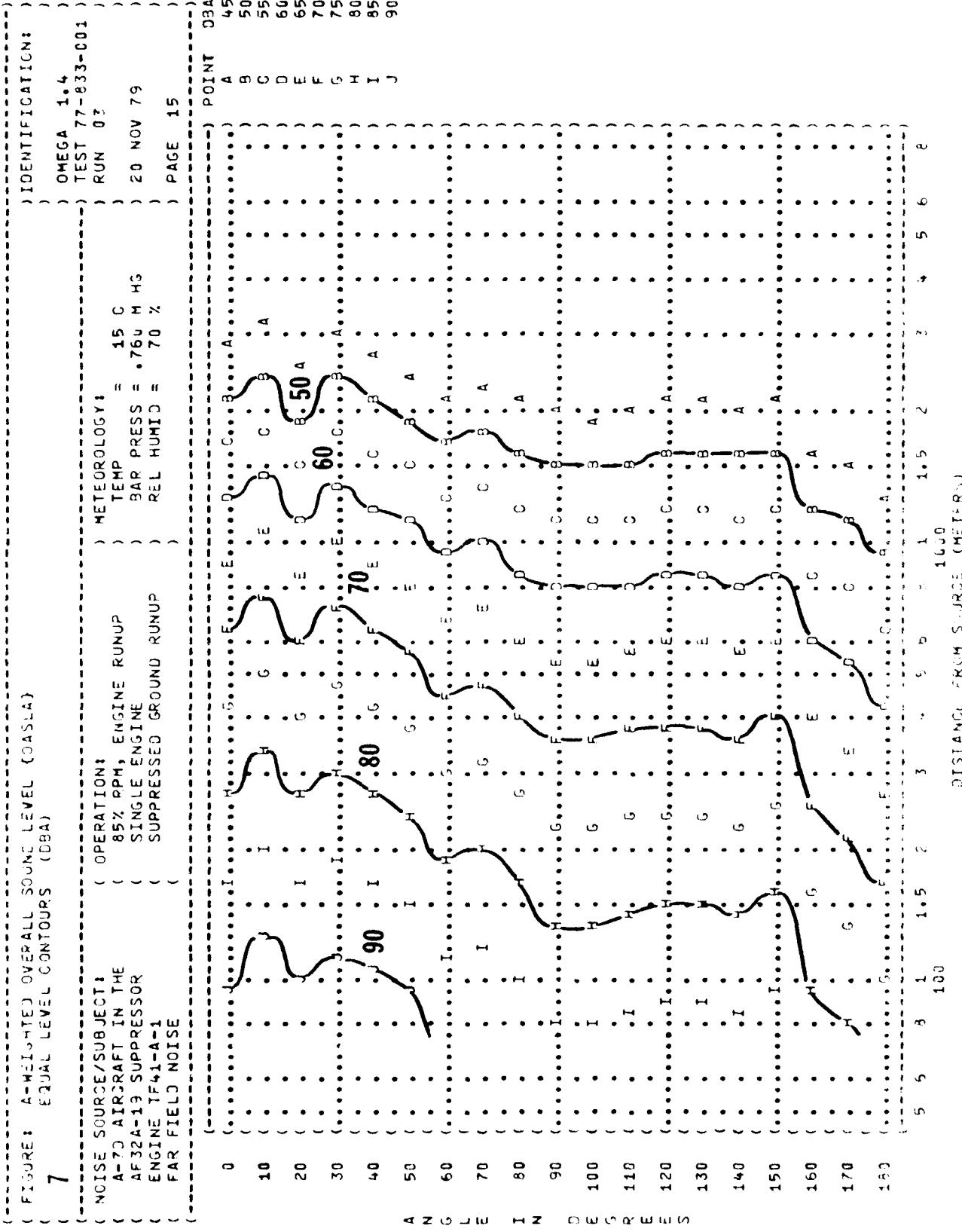
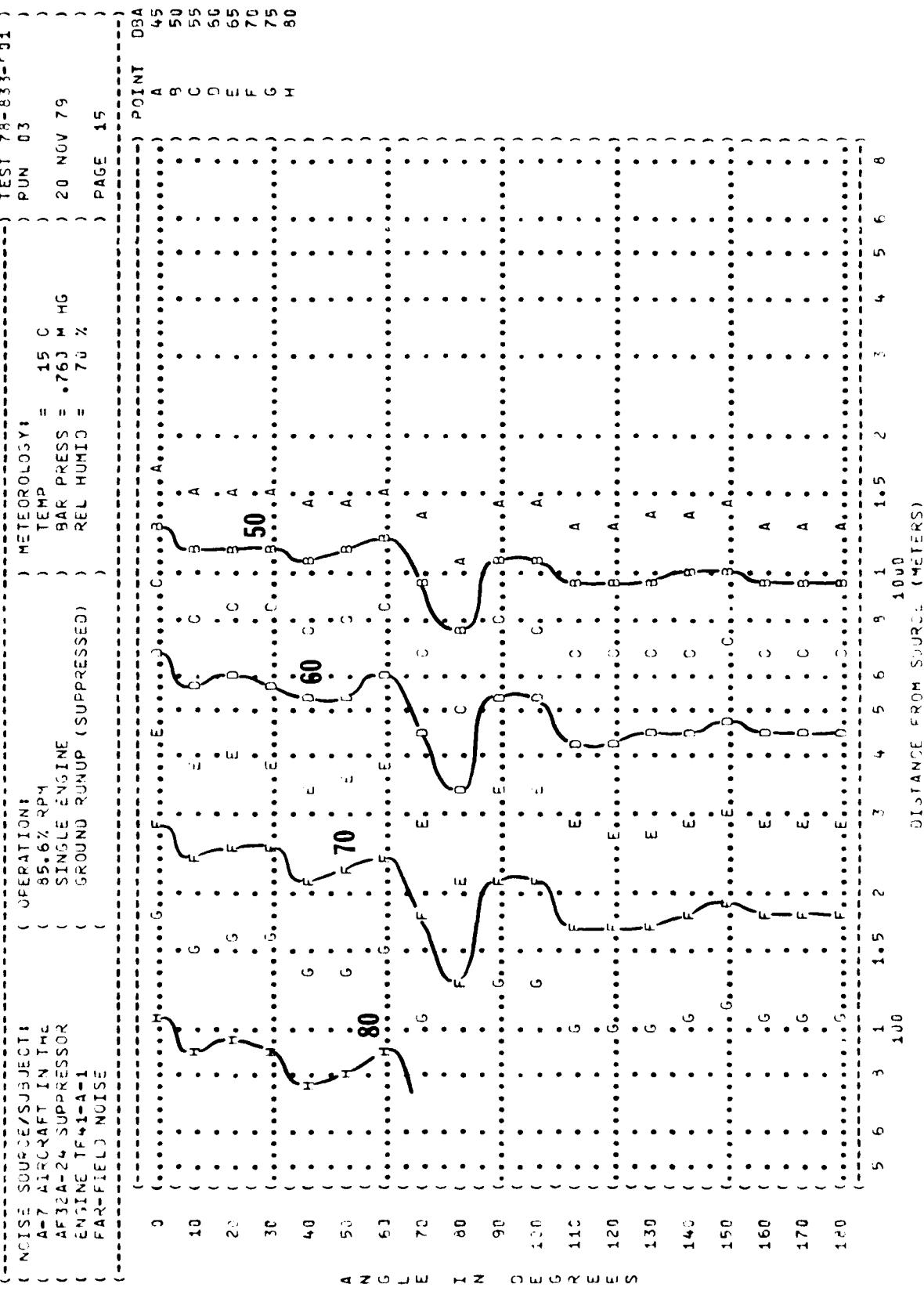


FIGURE 8 - WEIGHTED OVERALL SOUND LEVEL (DBA)
7 EQUAL LEVEL CONTOURS (DBA)



(FIGURE 1 A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 EQUAL LEVEL CONTOURS (CBA)
 7

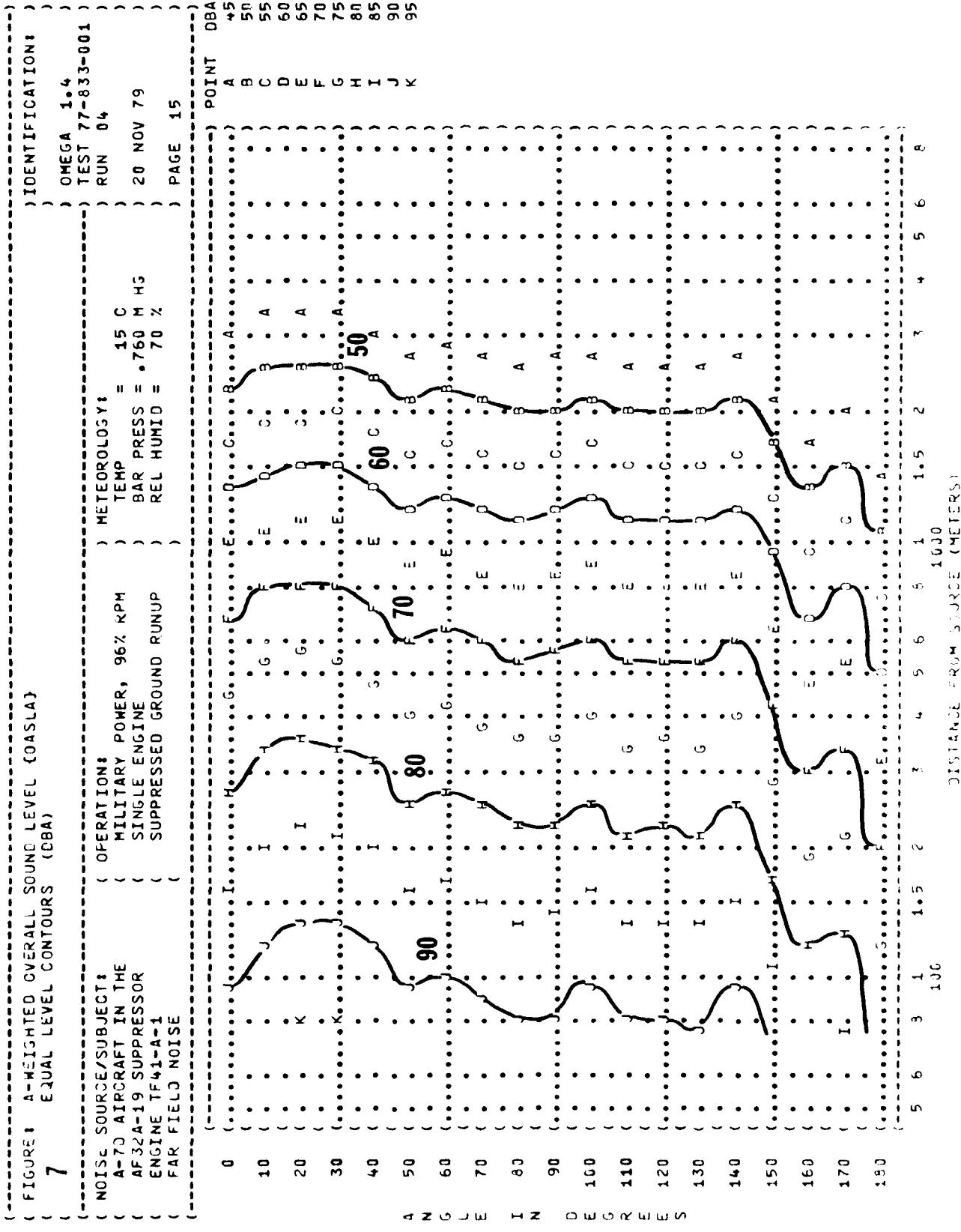


FIGURE 7 A-WEIGHTED OVERALL SOUND LEVEL (CSA) EQUAL LEVEL CONTOURS (CBA)

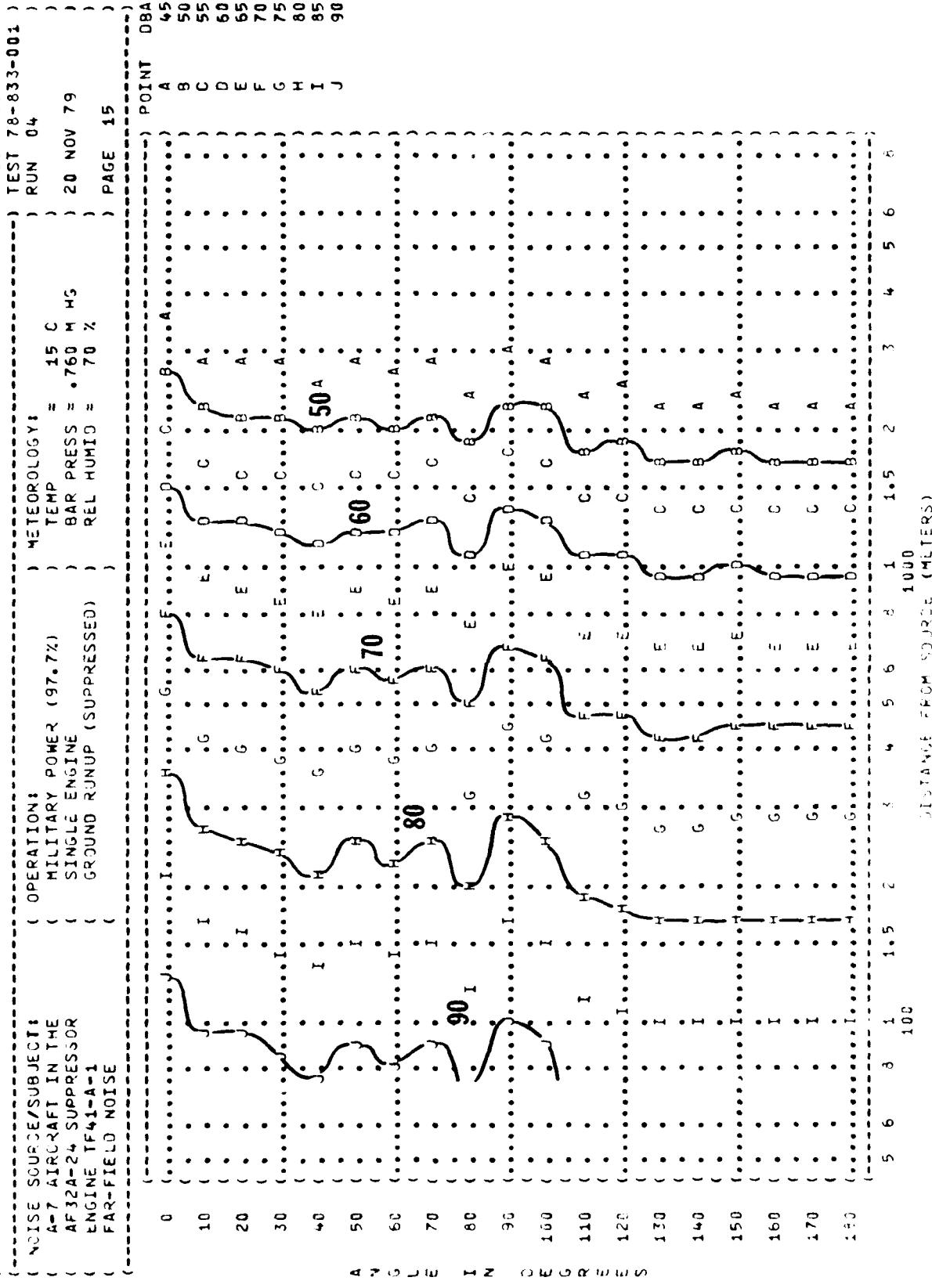


FIGURE 8 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
EQUAL LEVEL CONTOURS (PNLT)

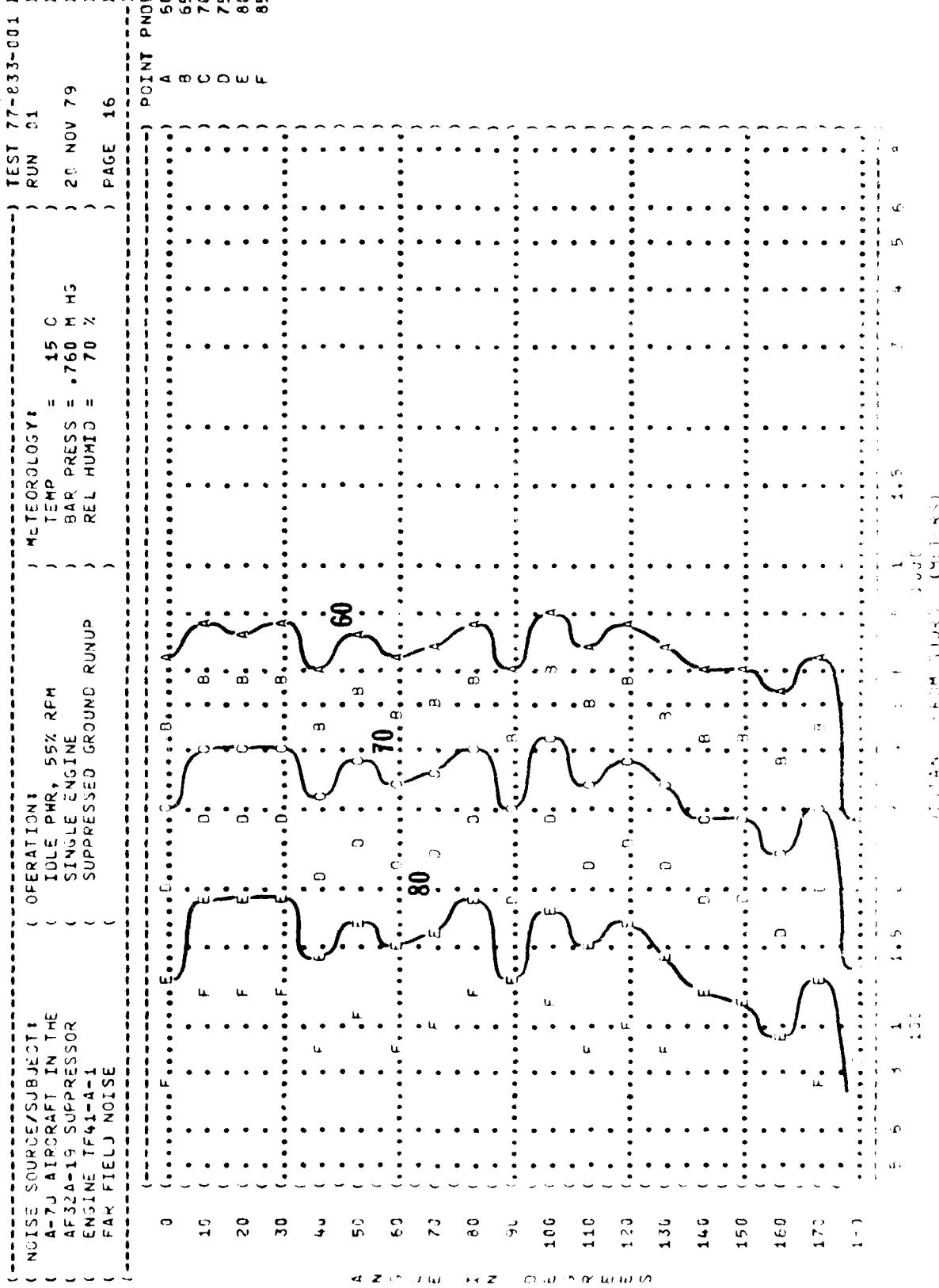


FIGURE 1 PERCEIVED NOISE LEVEL, TONE CONNECTED (PNT) EQUAL LEVEL CONTOURS (ENCA)

FIGURE 1 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)

8 EQUAL LEVEL CONTOURS (DECA)

NUISANCE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 COMPRESSOR
ENGINE TF41-A-1
(FAR-FIELD) NOISE

OPERATION:
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 MM HG
REL HUMID = 70 %

TEST 7A-833-001
RUN 01
20 NOV 79
PAGE 16

POINT PNLT
A 60
B 65
C 70
D 75
E 80

DISTANCE FEET SURFACE (FEET)

FIGURE 8 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
EQUAL LEVEL CONTOURS (PNLT)

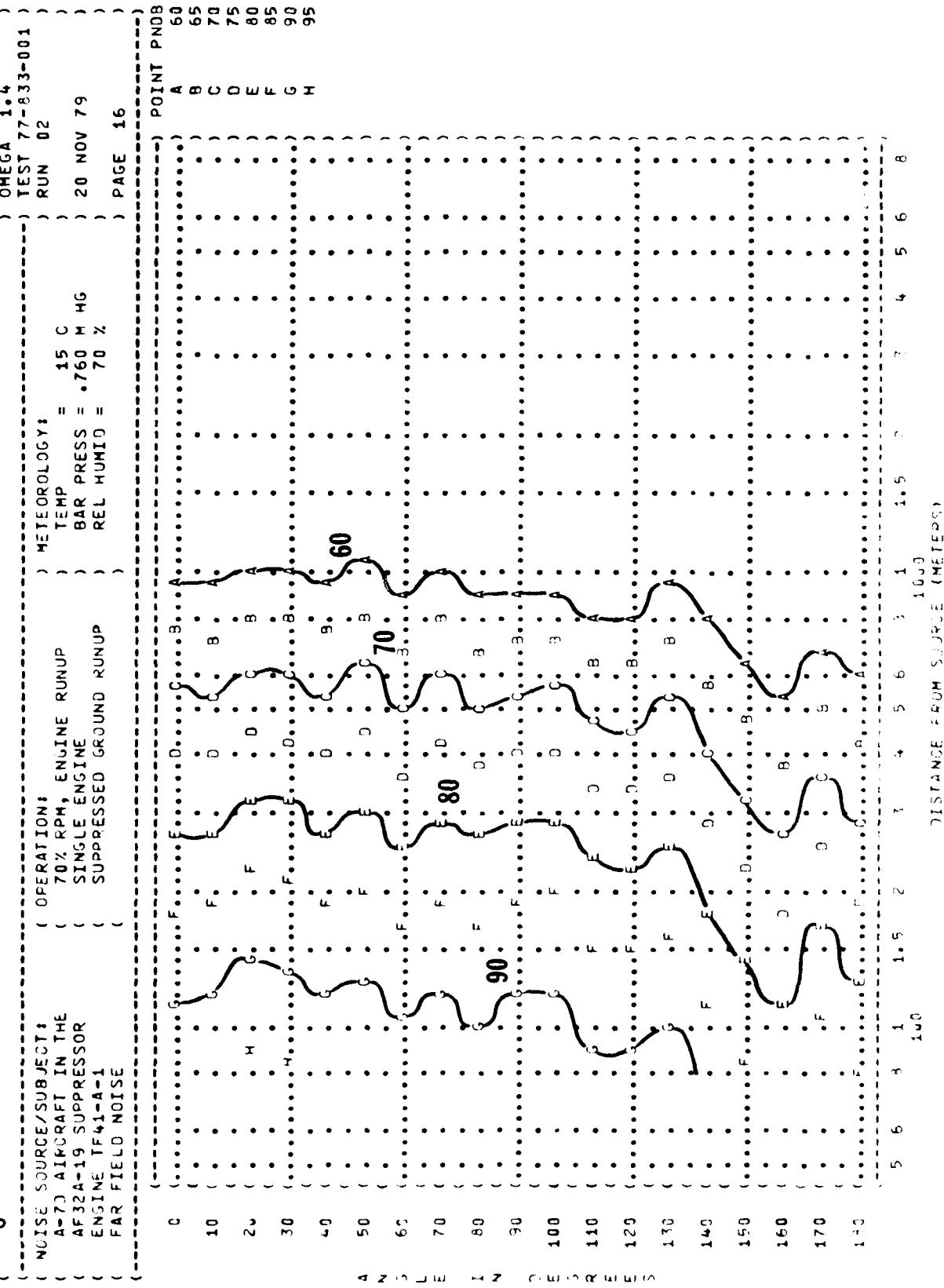
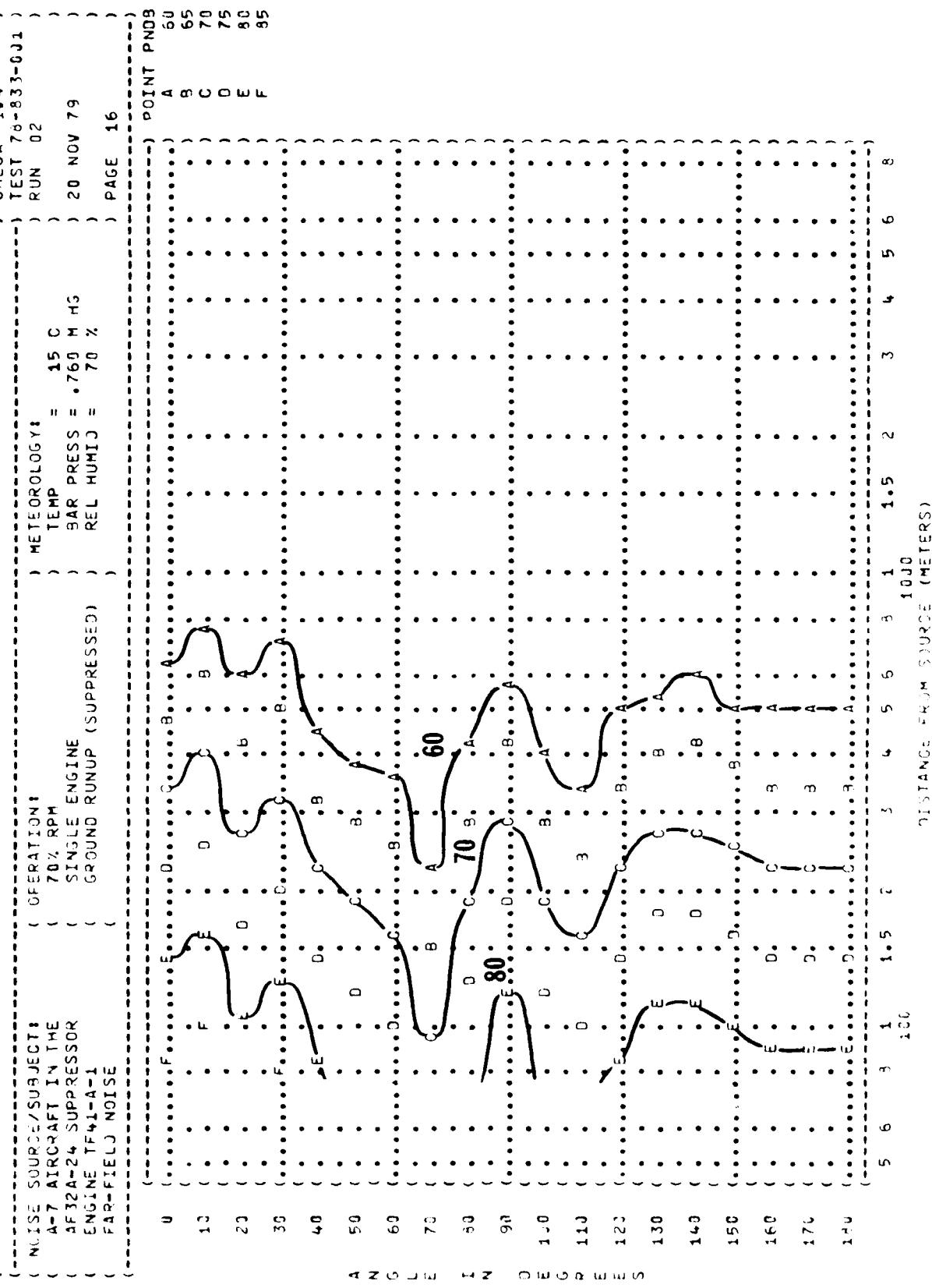


FIGURE 1 PERCEIVED NOISE LEVEL, TUNE CORRECTED (PNLT)
8 EQUAL LEVEL CONTOURS (PNLT)



(FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)
 8 EQUAL LEVEL CONTOURS (PNLT)

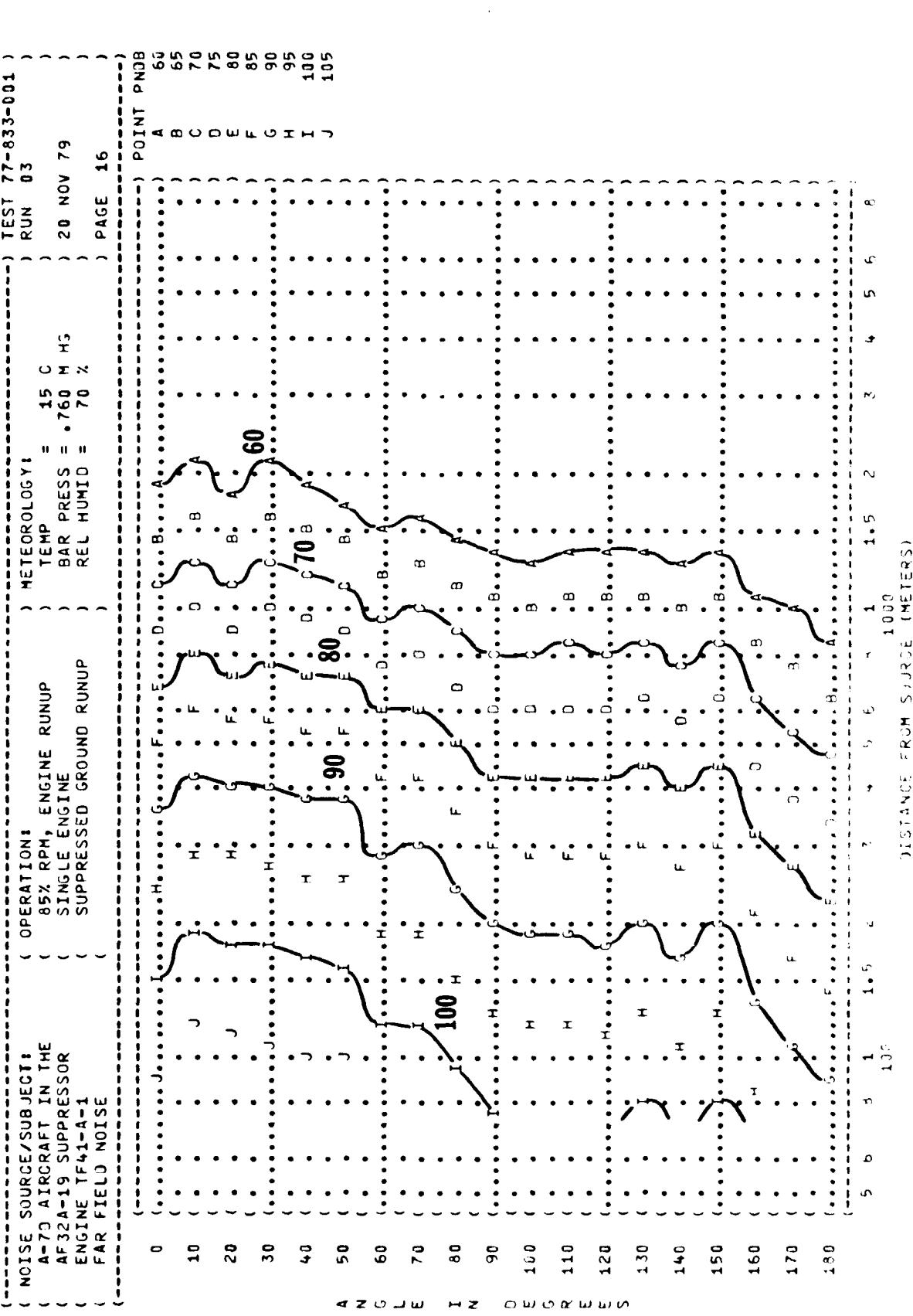


FIGURE 1 PERCEIVED NOISE LEVEL, JUNE CORRECTED (PNL)
EQUAL LEVEL CONTOURS (PNL)

8

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:

85.6% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:

TEMP = 15 C
BAR PRESS = 1060 Hg
REL HUMID = 70 %

TEST 73-533-C02

RUN 07

20 NOV 79

PAGE 16

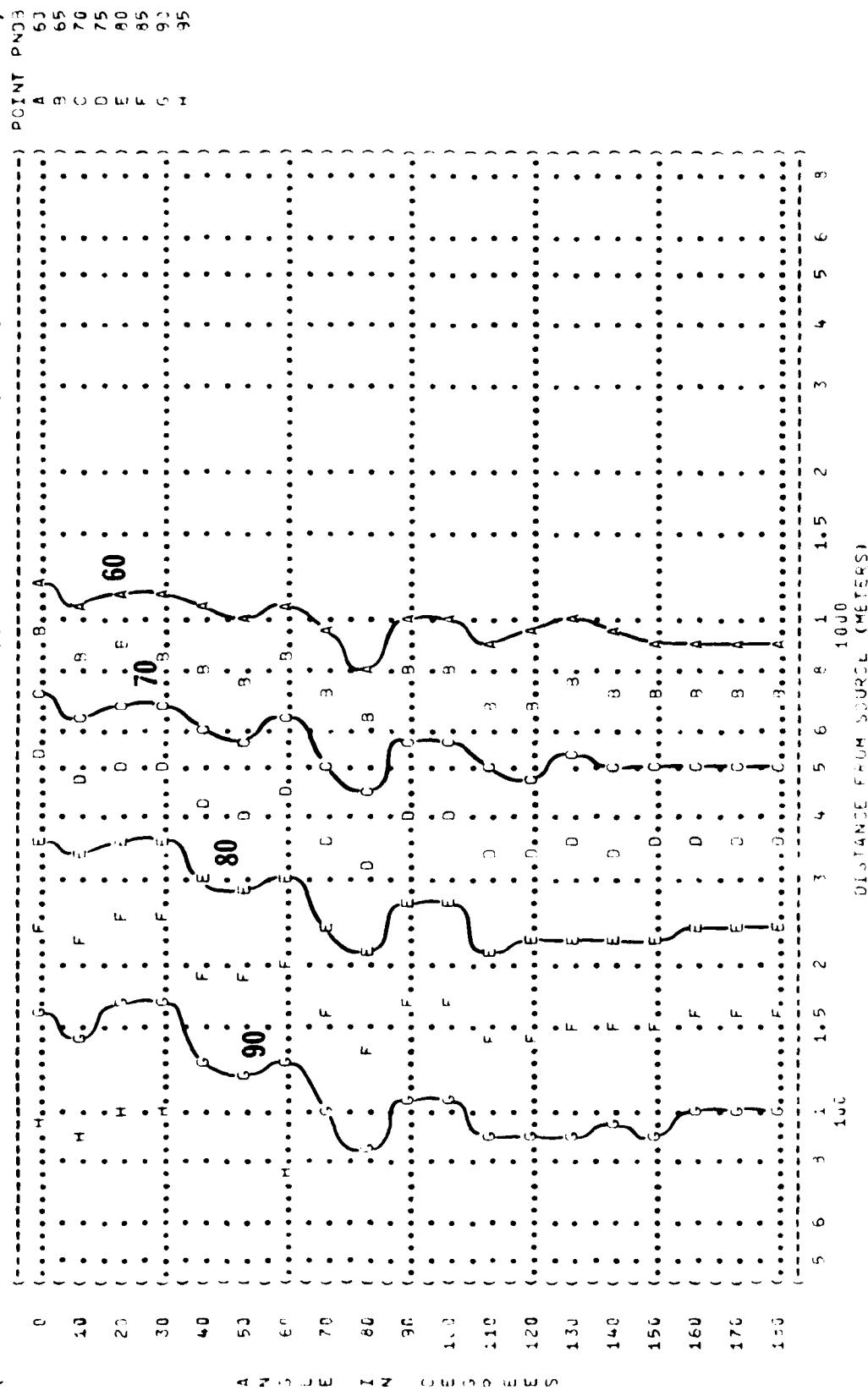


FIGURE 1 PERCENT NOISE LEVEL - TONE CORRECTED (PN0B)
EQUAL LEVEL CONTOURS (PN0B)

8

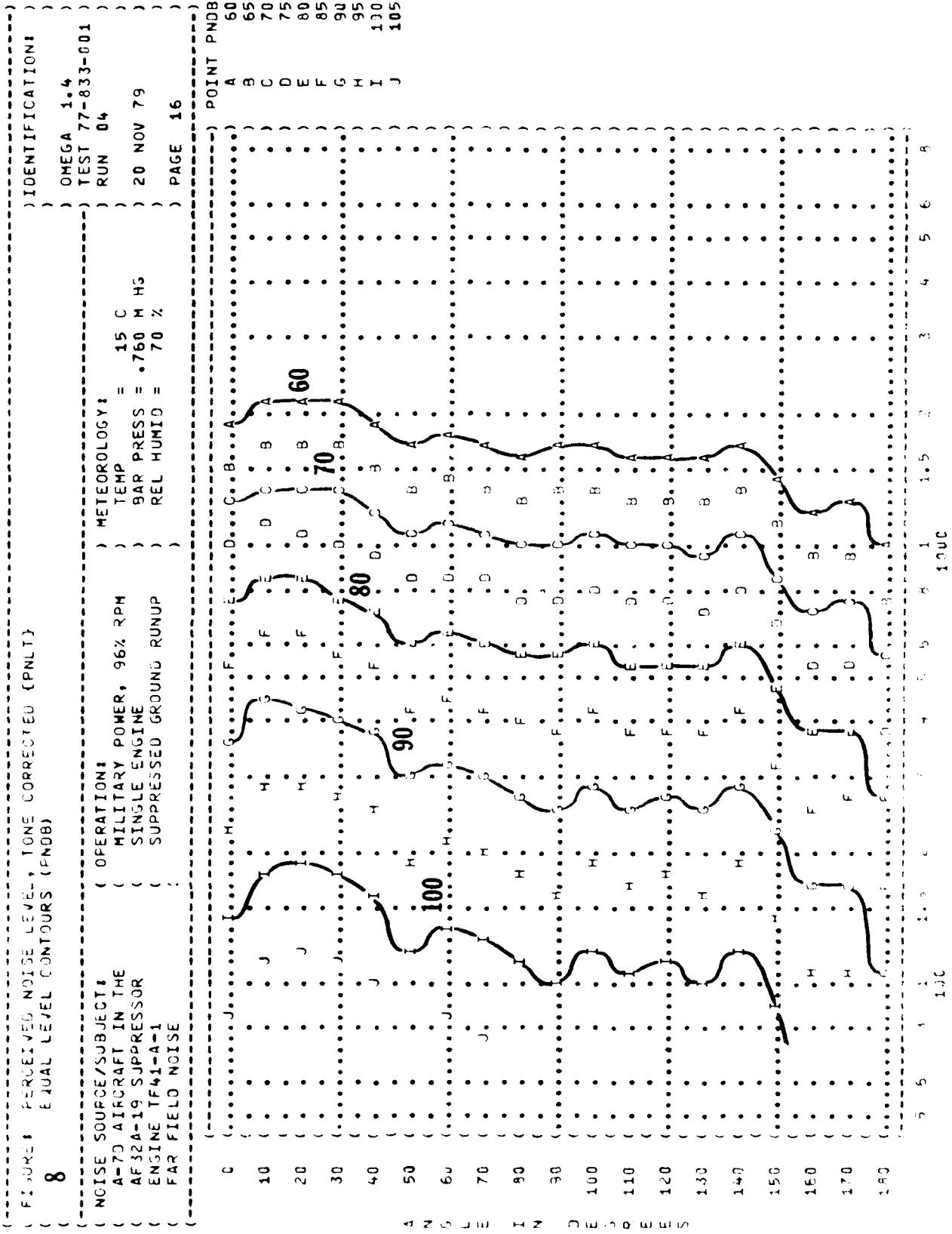
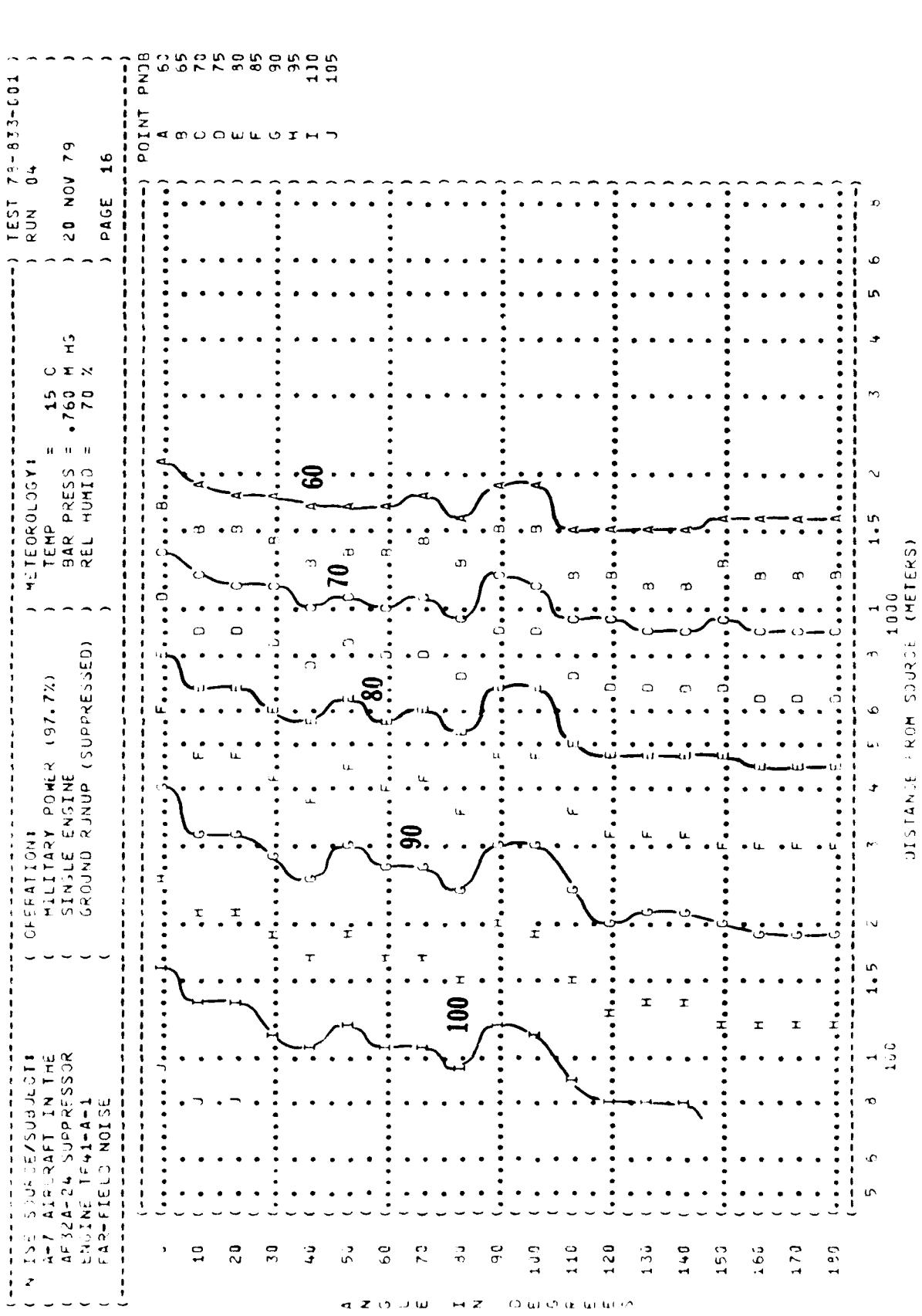
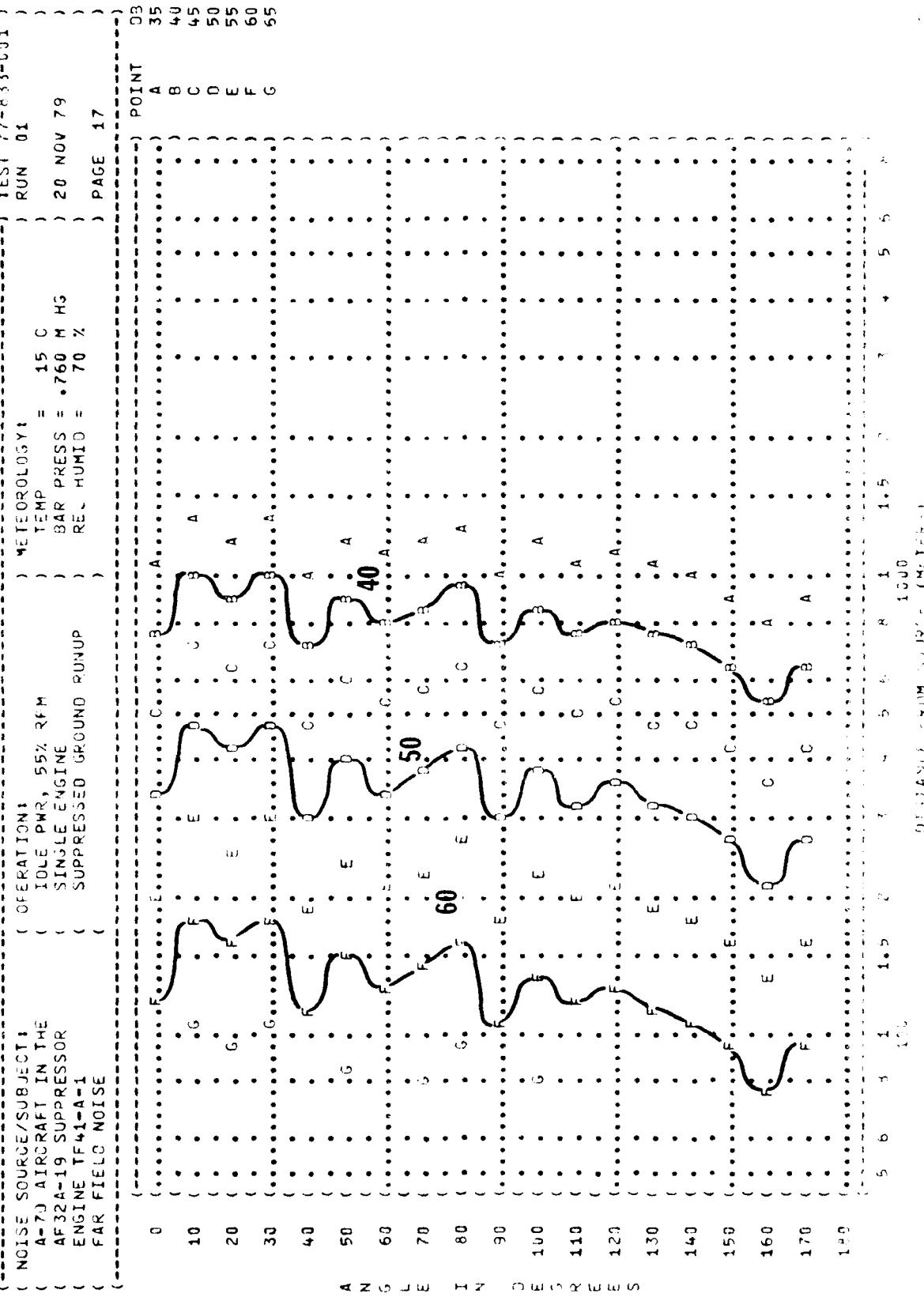


FIGURE 4 RECEIVED NOISE LEVELS IN dB AT POINTS (PNT A) TO (PNT J)
EQUIAL NOISE CONTOURS (PNT A)

8



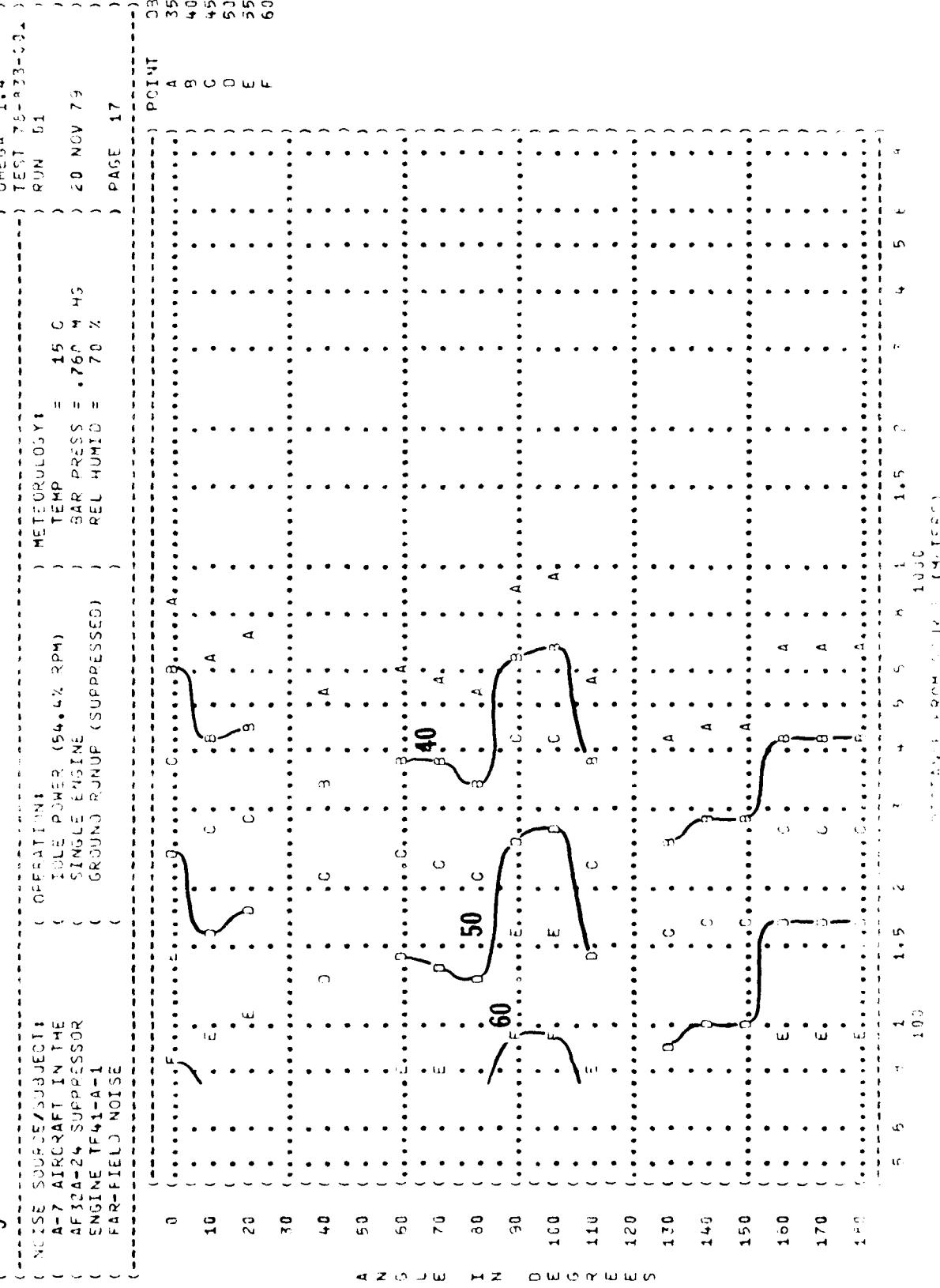
(FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (CB) 9



65

FIGURE 9. PREDICTED SPECTRUM INTERFERENCE LEVELS (DB) FOR AIRCRAFT CONTAMINATORS (LB)

9



(FIGURE 1 PREPARED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB) 9

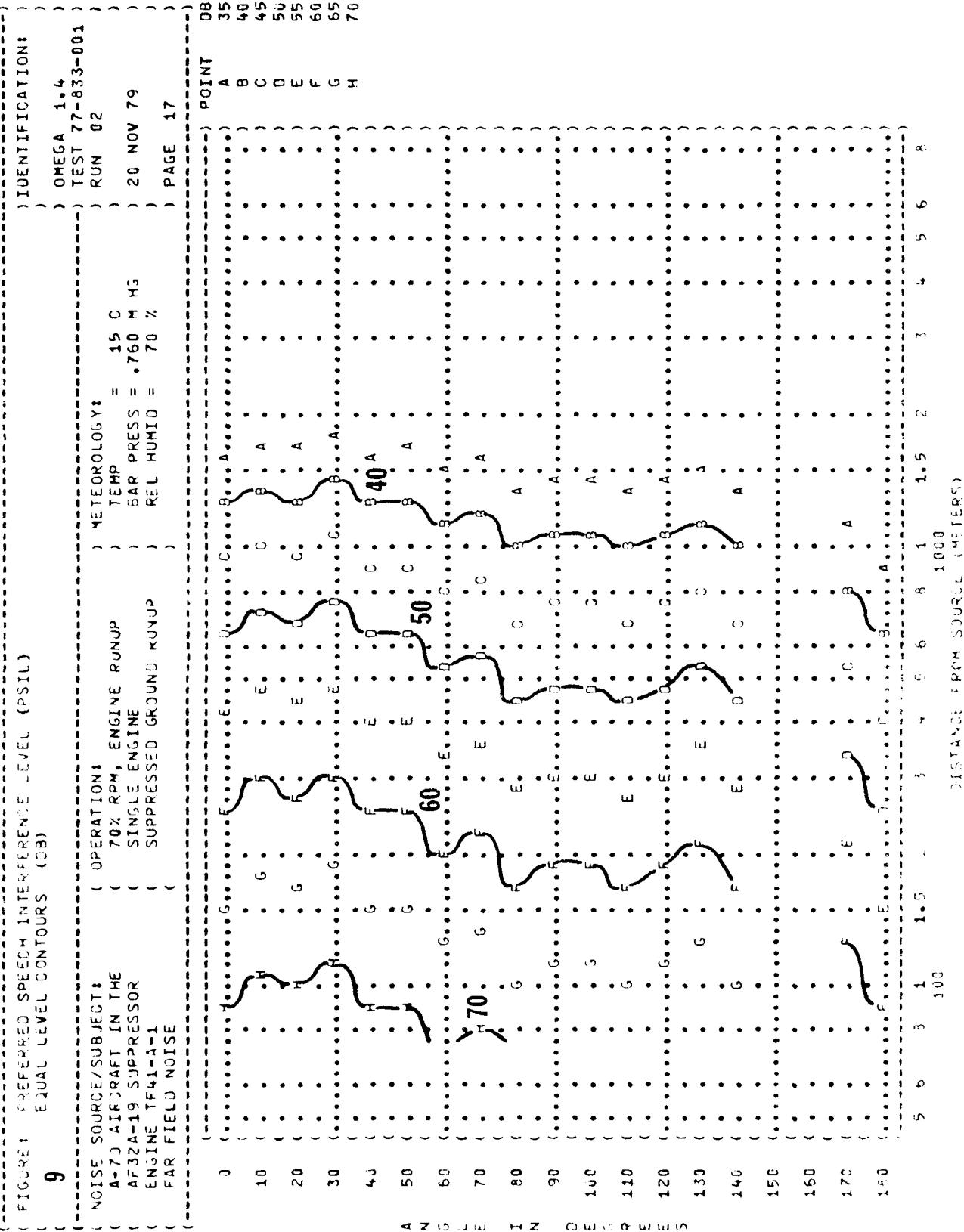


FIGURE 1. PREFERRED SPEECH INTERFERENCE LEVEL (PSI) EQUAL LEVEL CONTOURS (C.R.)

NOISE SOURCE/SUBJECT	OPERATION
A-7 AIRCRAFT IN THE AF32A-24 SUPPRESSOR ENGINE TFE1-A-1	70% RPM
FAR-FIELD NOISE	SINGLE ENGINE GROUND RUN

METEOROLOGY:)
) TEMP =
) BAR PRESS =
) REL HUMID =
)

OPERATION:
 70% RPM
 SINGLE EYE LINE
 GROUND RUNUP (SUPPRESSED)

FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) IDENTIFICATION:)
EQUAL LEVEL COUNTS (%))
9

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:
A-7 AIRCRAFT IN THE AF32A-26 SUPPRESSOR ENGINE TF41-A-1	70% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)	TEMP = 15 C BAR PRESS = .760 Hg REL HUMID = 70 %
FAR-FIELD NOISE		RUN 02 20 NOV 79
		PAGE 17

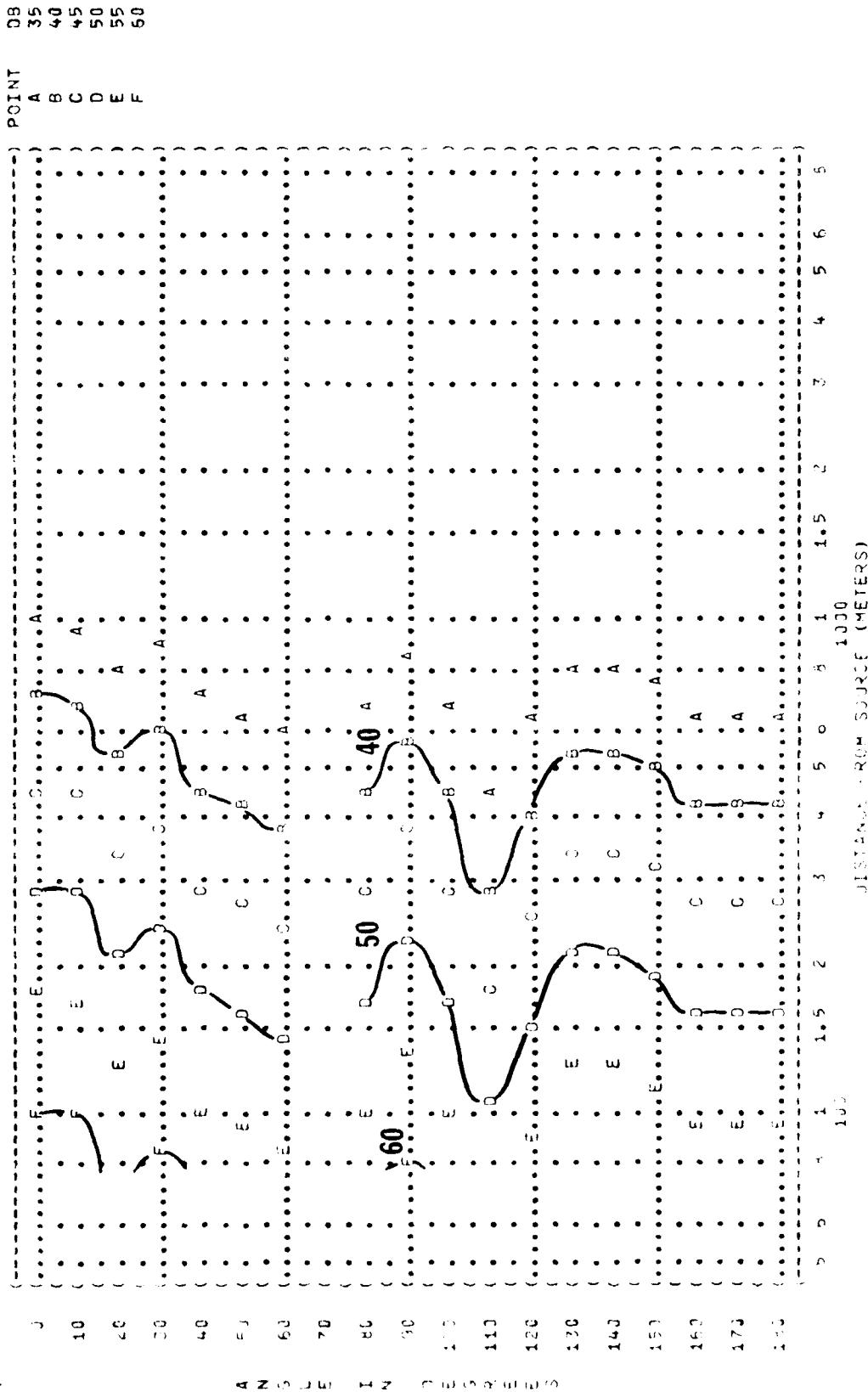
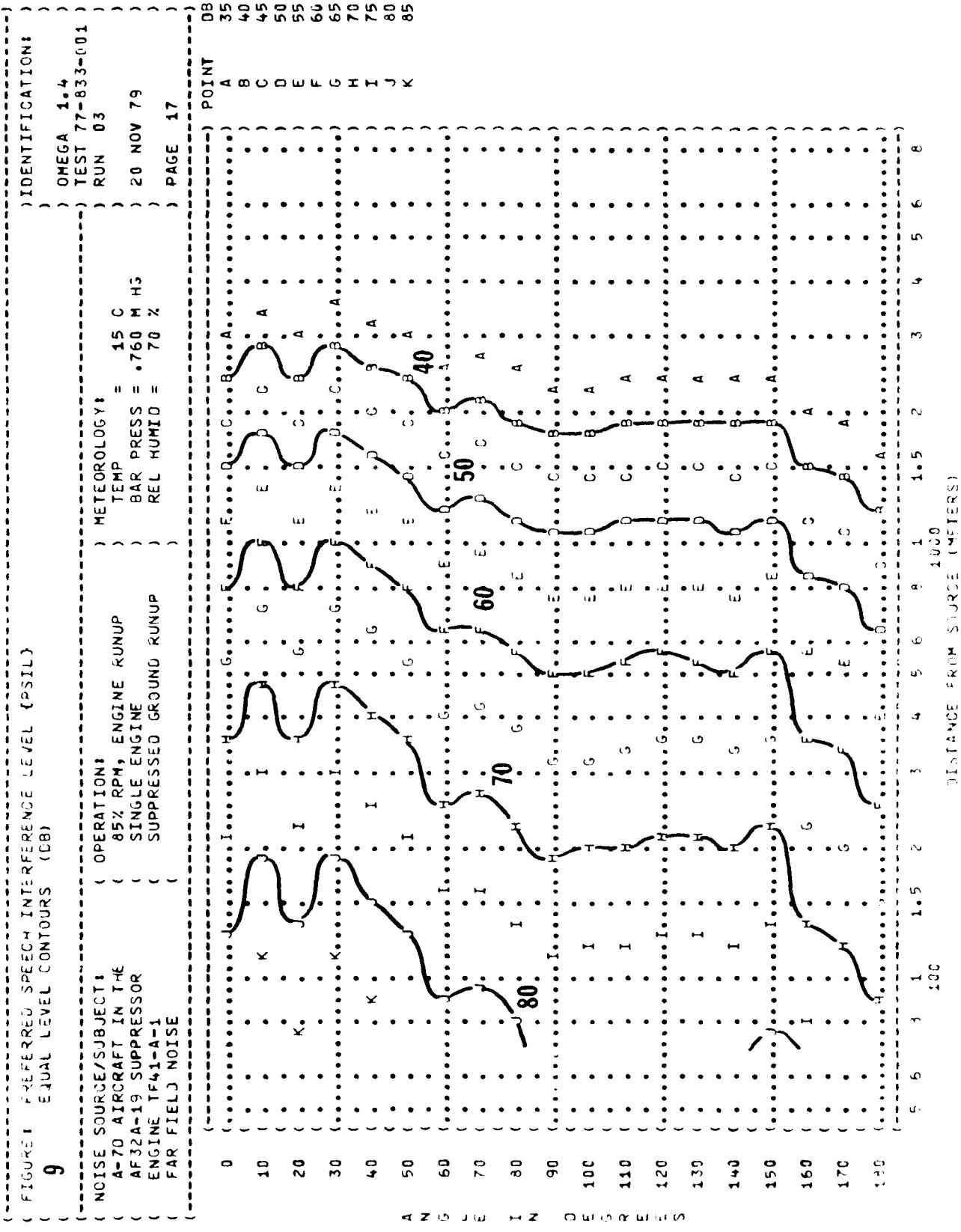


FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
9 EQUAL LEVEL CONTOURS (CB)

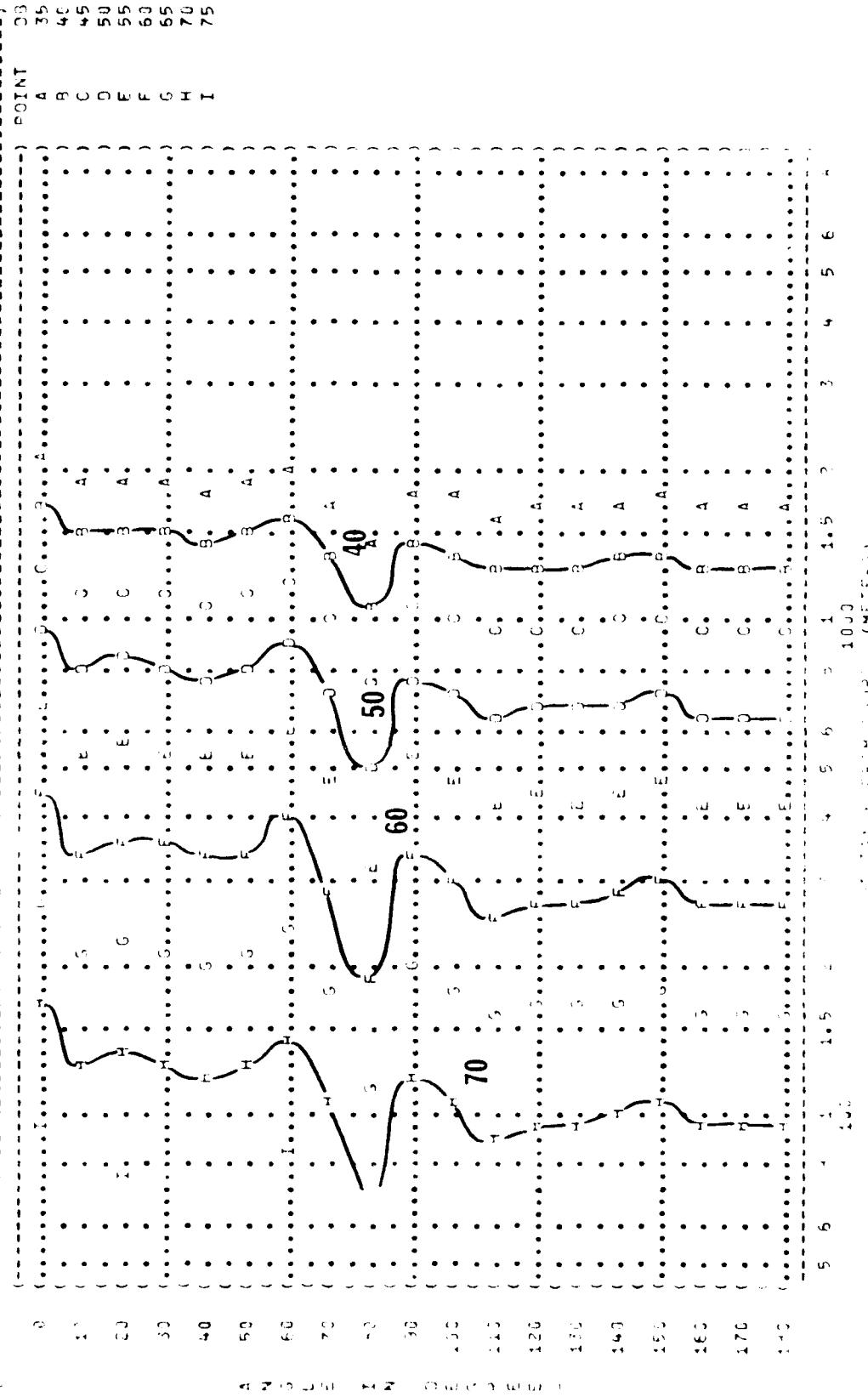


9

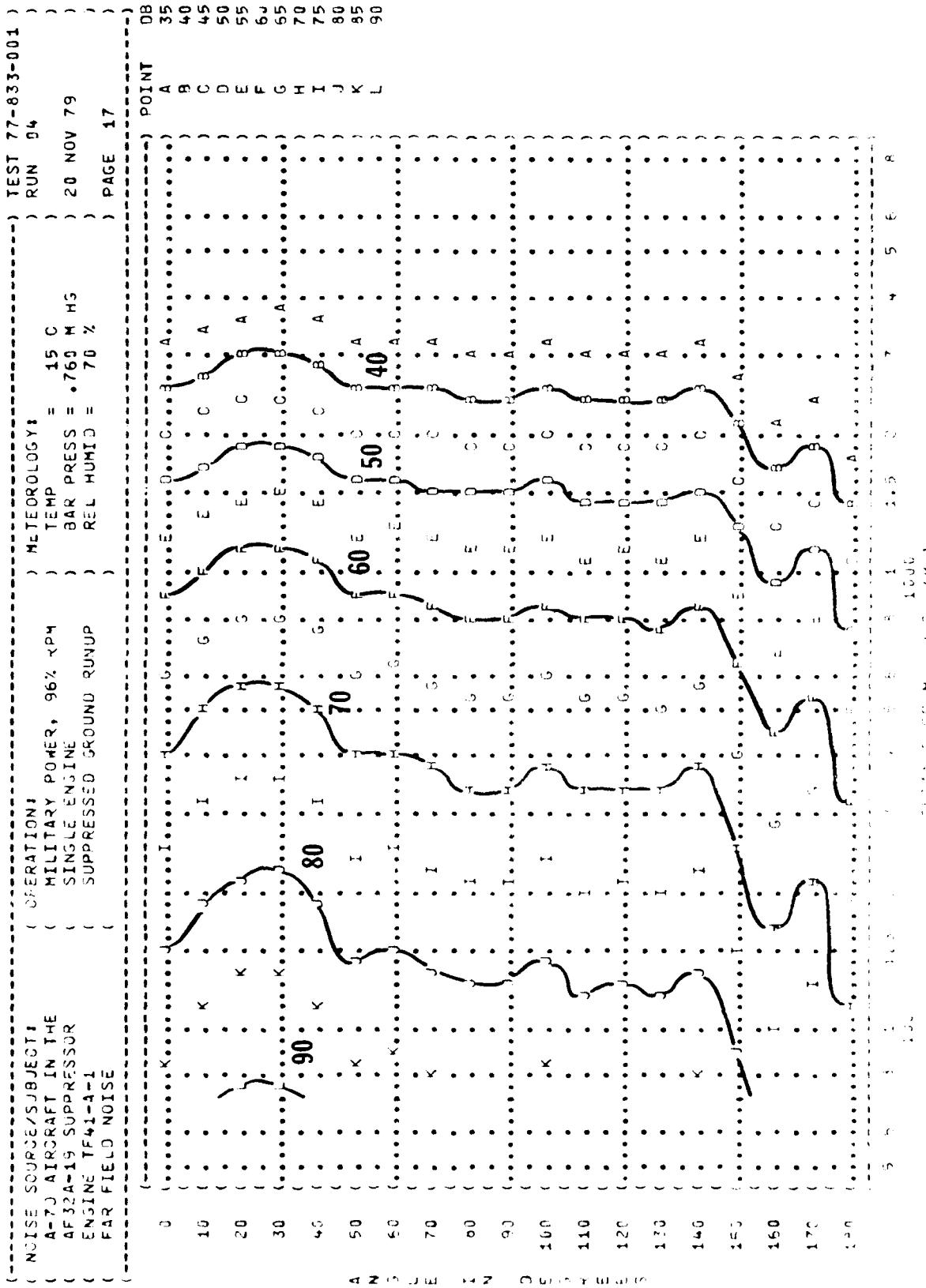
FIGURE 8 - EFFECTS OF SPURIOUS REFLECTIONS ON VIBRATIONS (TEST 7)

OPERATION:
85.5% RPM
SINGLE ENGINE
IGNITION (SUPPRESSED)
FAR-FIELD NOISE

METEOROLOGY:
TIME = 15 00 HRS
BAR PRESS = .760 MM
REL HUMID = 70 %
PAGE 17



(FIGURE 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)



(FIGURE 1 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)

9

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-2 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

) IDENTIFICATION:

) OMEGA 1.4
TEST 78-833-001
RUN 04

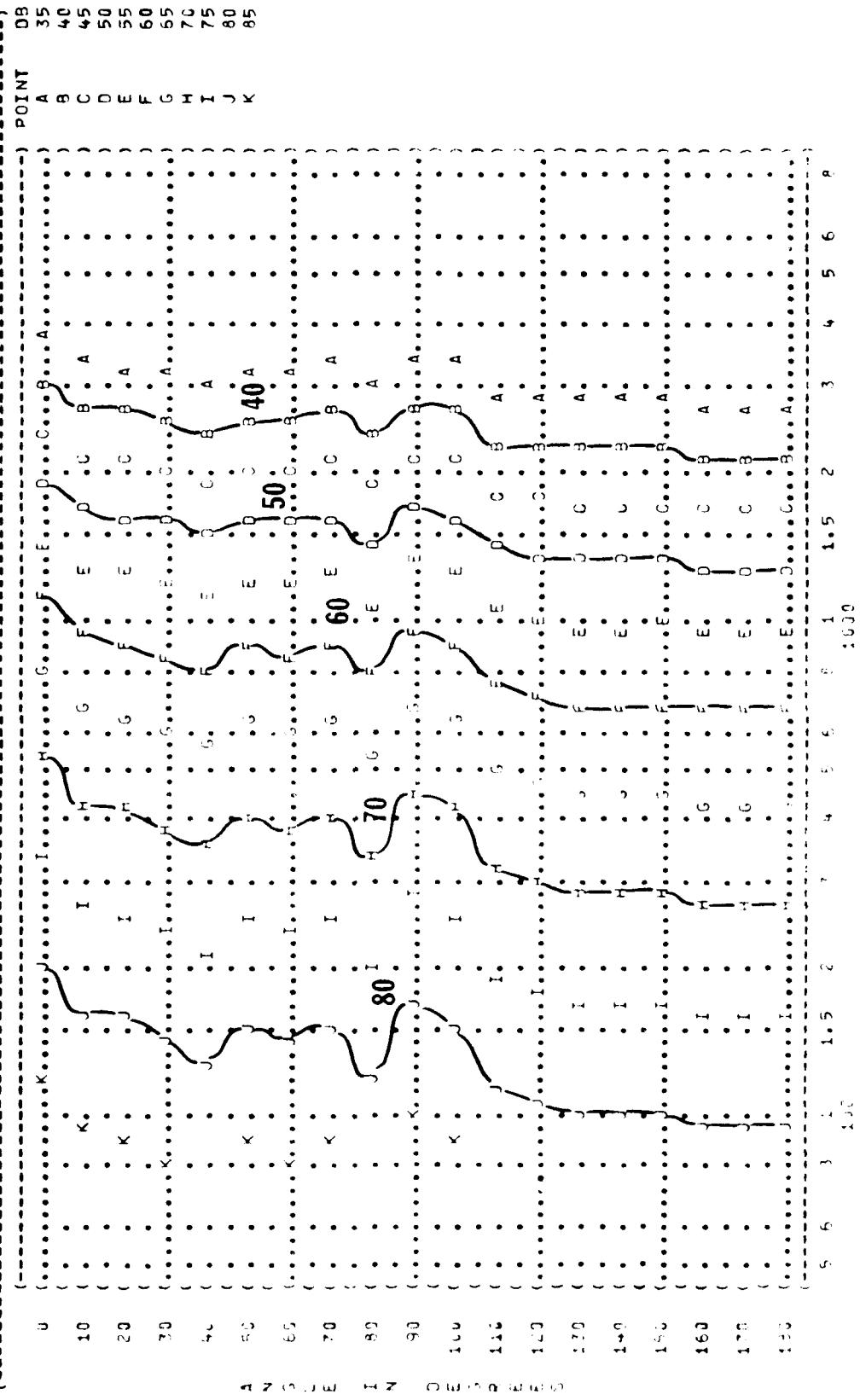
) 20 NOV 79

) PAGE 17

) METEOROLOGY:

) TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %

)



STANDBY ALTITUDE 10000 FEET

STANDBY DISTANCE 10000 METERS

FIGURE 1 MAXIMUM PERMISSIBLE TIME (MIN) FOR ONE EXPOSURE PER DAY (AFR 161-15, JULY 73) IDENTIFICATION: 1
 EQUAL TIME CONTOURS (MINUTES)
10
 NCISE SOURCE/SUBJECT: (OPERATION:
 A-7D AIRCRAFT IN THE (IDLE PWR, 55% RPM) METEOROLOGY:
 AF32A-19 SUPPRESSOR (SINGLE ENGINE) TEMP = 15 C
 ENGINE TFG1-A-1 (SUPPRESSED GROUND RUNUP) BAR PRESS = .760 M HS
 FAR FIELD NOISE () REL HUMID = 70 %
) TEST 77-633-01
) RUN 01
) 20 NOV 79
) PAGE 7
) OMEGA 1.4

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40 < (PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
50 < (AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDEER THE FOLDOWING ARE PRACTICION CONVENTIONS:

NOTICES ON

MINIMUM CPL EAR MUFFS

AMERICAN OPTICAL

V-51R EAR PLUGS

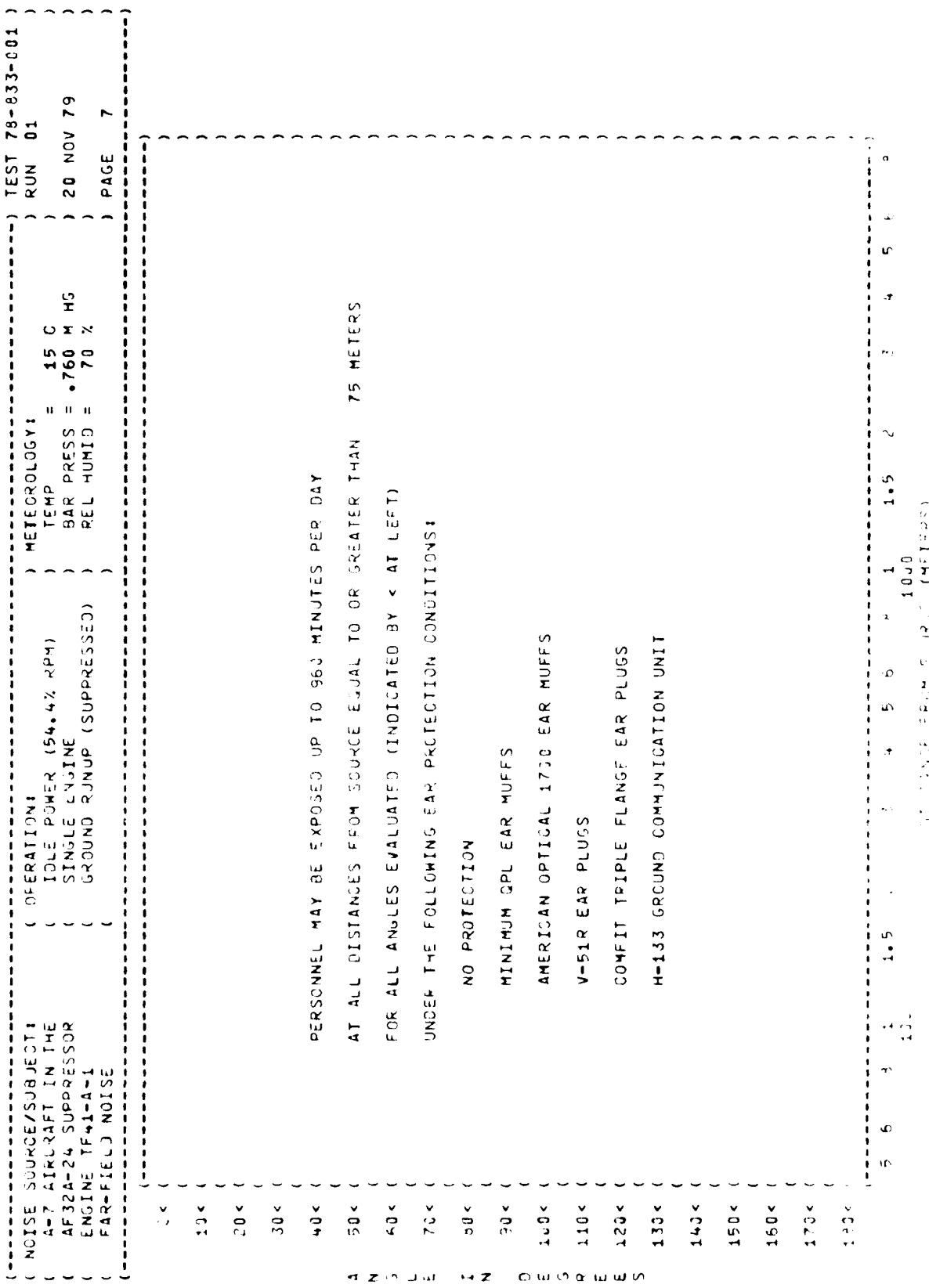
COMET EPIBLE FLANGE EAR PLUGS

H-133 GROUND COMMUNICATION UNIT

140 < 1
150 < 1
160 < 1
170 < 1

FIGURE 1 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

10



(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPLOSIVE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:
 (10)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 (A-70 AIRCRAFT IN THE (70% RPM, ENGINE RUNUP) TEMP = 15 C
 (AF32A-1^o SUPPRESSOR (SINGLE ENGINE) BAR PRESS = .760 M HG) 20 NOV 79
 (ENGINE TF41-A-1 (SUPPRESSED GROUND RUNUP) REL HUMID = 70 %) PAGE 7
 (FAR FIELD NOISE ()
 (---)

(---)
 (0 < ()
 (10 < ()
 (20 < ()
 (30 < ()
 (40 < ()
 (50 < ()
 (60 < ()
 (70 < ()
 (80 < ()
 (90 < ()
 (100 < ()
 (110 < ()
 (120 < ()
 (130 < ()
 (140 < ()
 (150 < ()
 (160 < ()
 (170 < ()
 (180 < ()
 (---)

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
 AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
 FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)
 UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:
 NO PROTECTION
 MINIMUM GPL EAR MUFFS
 AMERICAN OPTICAL 1700 EAR MUFFS
 V-51R EAR PLUGS
 COMFIT TRIPLE FLANGE EAR PLUGS
 H-133 GROUND COMMUNICATION UNIT

DISTANCE FROM SOURCE (METERS)	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
100	2	1	1.5	c	7	4	5	6	8	1	1.5	?	2	4	5	6

FIGURE 1 MAXIMUM PERMISSIBLE TIME (T) FOR
EQUILIBRIUM SINKDRAWS (MINUTES)

1

40 < PERSONNEL MAY BE EXPOSED UP TO 360 MINUTES PER DAY
50 < AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN
60 < FOR ALL ANGLES EVALUATED (INCLINED BY < AT LEFT)
70 < UNDER THE FOLLOWING EASY PROTECTION CONDITIONS

30< (	N	NO PROTECTION
30< (	S	MINIMUM GPL EAR MUFFS
40< (	S	AMERICAN OPTICAL 170C EAR MUFFS
110< (	R	V-51R EAR PLUGS
220< (	E	COMFIT TRIPLE FLANGE EAR PLUGS
	S	H-4222 CORDLESS COMMUNICATION UNIT

Ground Connection Unit No.	Ground Resistance (R_g , ohms)
133	0.55
140	0.60
150	0.65
160	0.70
170	0.75
180	0.80

(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION: 10
 (EQUAL TIME CONTOURS (MINUTES))
 NO PROTECTION

10

(NCISE SOURCE/SUBJECT:
 (A-7D AIRCRAFT IN THE
 (AF32A-19 SUPPRESSOR
 (ENGINE TF41-A-1
 (FAR FIELD NOISE)

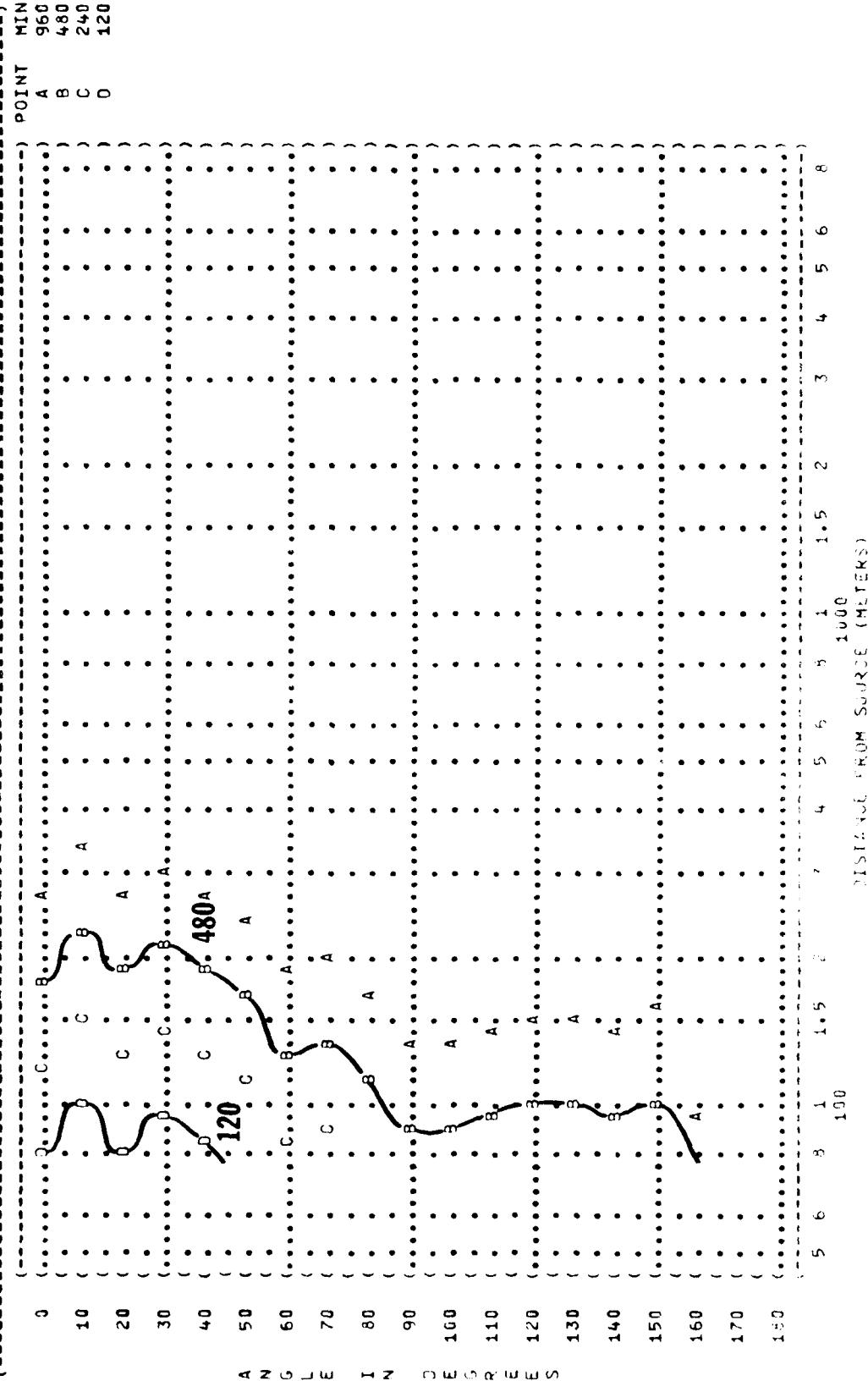


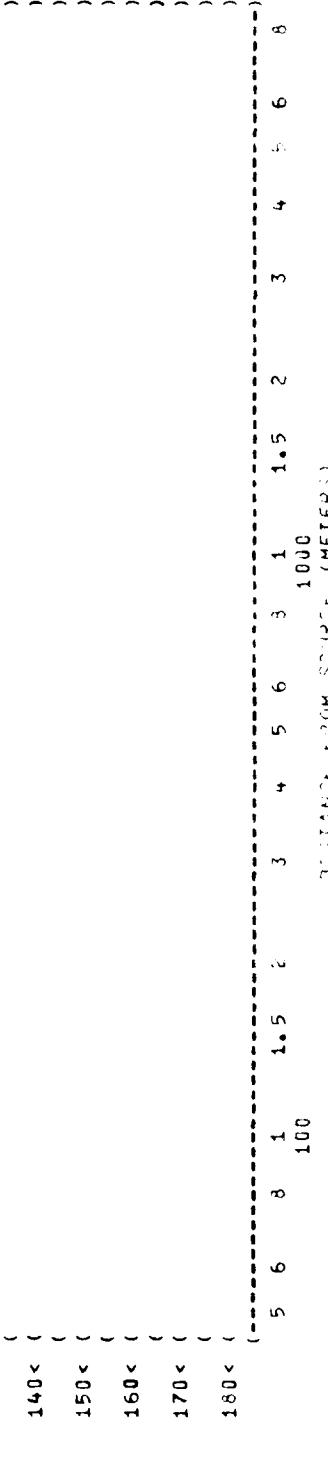
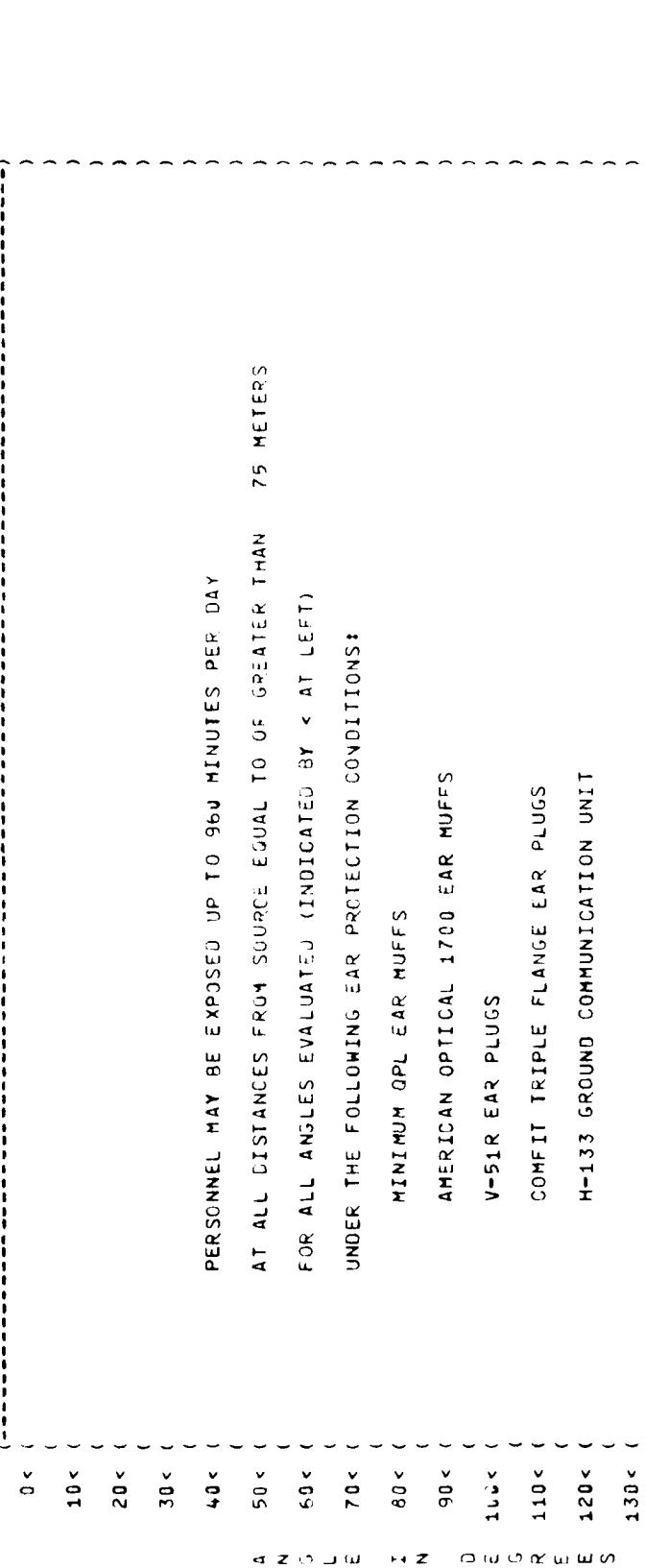
FIGURE 1 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
10
 EQUAL TIME CONTOURS (MINUTES)

INCISE SOURCE/SUBJECT:
 A-7D AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 MM Hg
 REL HUMID = 70 %

TEST 77-833-F01
 RUN 03
 20 NOV 79
 PAGE 8



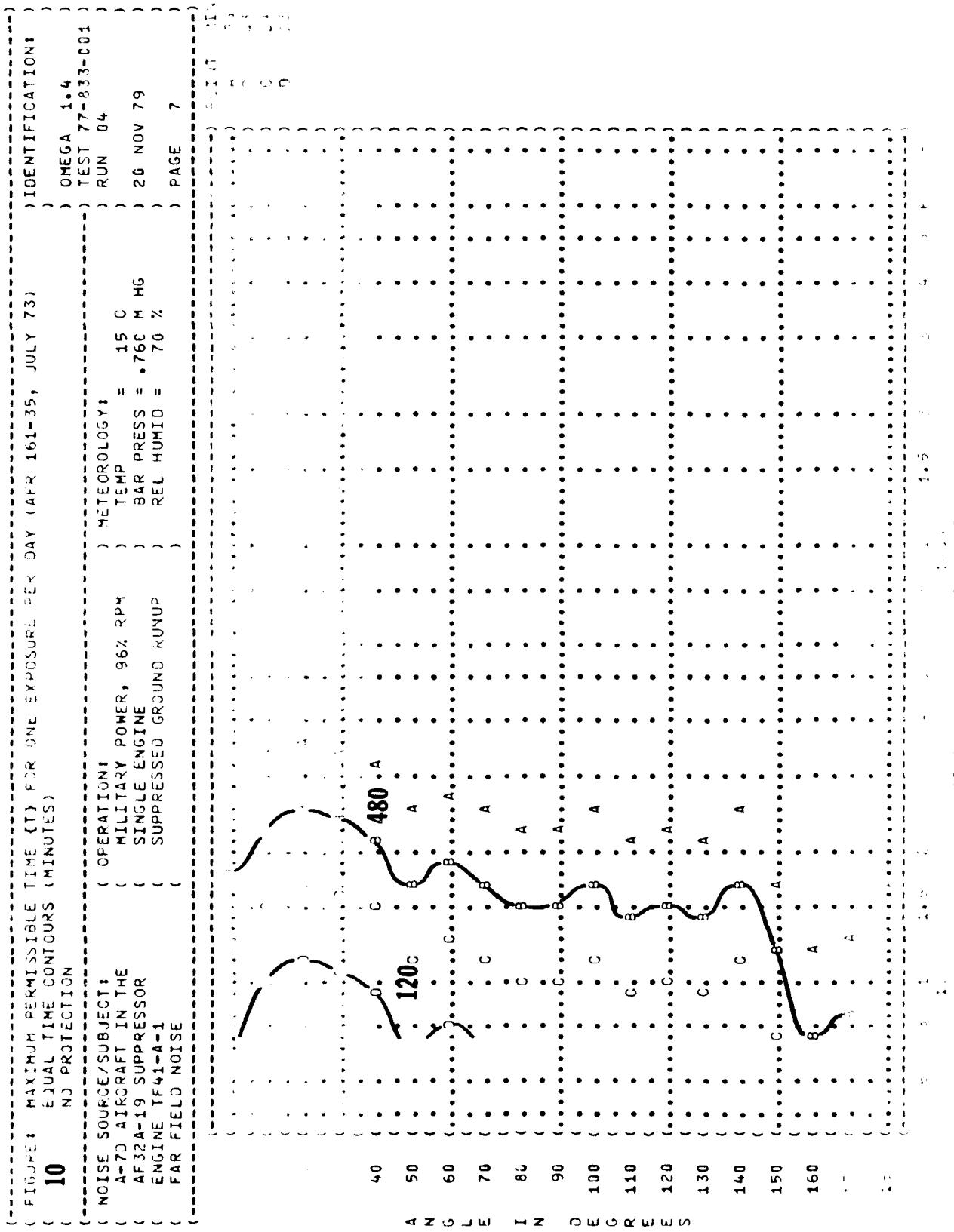
1

10 AIRCRAFT PROJECTION
10 SOURCE/SUBJECT: (A-7 AIRCRAFT IN THE
AF72A-24 SUPPRESSOR
ENGINE TF41-A-1
E2-FIELD NOISE)
10 OPERATION: (55.6% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED))
10 METEOROLOGY: (TEMP = 15 C
BAR PRESS = .760 M Hg
REL HUMID = 70 %)
10 DAY (AF-TEST, BLOW BY) IDENTIFICATION:
10 OMEGA 1.4
10 TEST 78-833-001
10 PAGE 7
10 POINT MIN
10 A

A scatter plot showing a strong positive linear correlation between two variables. The x-axis ranges from 100 to 190 with increments of 10. The y-axis ranges from 5 to 8 with increments of 1. A dashed regression line is drawn through the data points.

x	y
100	5.6
105	5.8
110	6.0
115	6.2
120	6.4
125	6.6
130	6.8
135	7.0
140	7.2
145	7.4
150	7.6
155	7.8
160	8.0
165	8.2
170	8.4
175	8.6
180	8.8
185	8.9
190	9.0

THE SOURCE (MATERIAL)



10

NOISE SOURCE/SUBJECT:
A-7D AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

0 <

10 <

20 <

30 <

40 <

A 50 <

C 60 .

E 70 <

I 80 <

J 90 <

D 100 <

S 110 <

T 120 <

U 130 <

V 140 <

W 150 <

X 160 <

Y 170 <

Z 180 <

OPERATION:
MILITARY POWER, 96% RPM
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST 77-833-001
RUN 04

OMEGA 104
PAGE 8

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY

AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

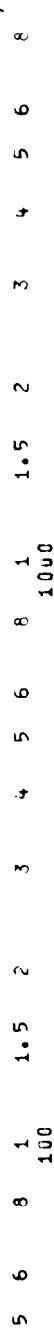
MINIMUM QPL EAR MUFFS

AMERICAN OPTICAL 1711 EAR MUFFS

V-51R EAR PLUGS

COMFIT TRIPLE FLANGE EAR PLUGS

H-133 GFCUND COMMUNICATION UNIT



DISTANCE FROM SOURCE (METERS)

10

MAXIMUM PERMISSIBLE TIME (CT) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

EQUAL TIME CONTOURS (MINUTES)

NO PROTECTION

PROJECT MAXIMUM PERMISSIBLE TIME (CT) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

IDENTIFICATION:

TEST 78-833-001

RUN 04

OMEGA 1.4

20 NOV 79

PAGE 7

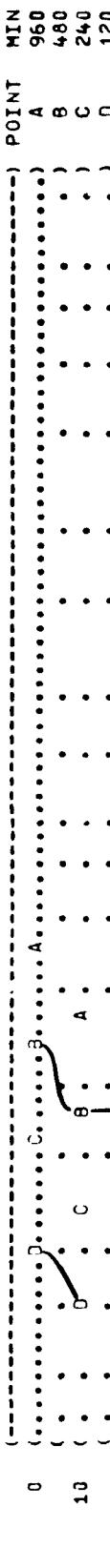
SOURCE/SUBJECT: OPERATION:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

MILITARY POWER (97.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %



METEOROLOGY:

POINT MIN

A 960

B 480

C 240

D 120

DISTANCE FROM SOURCE (METERS)

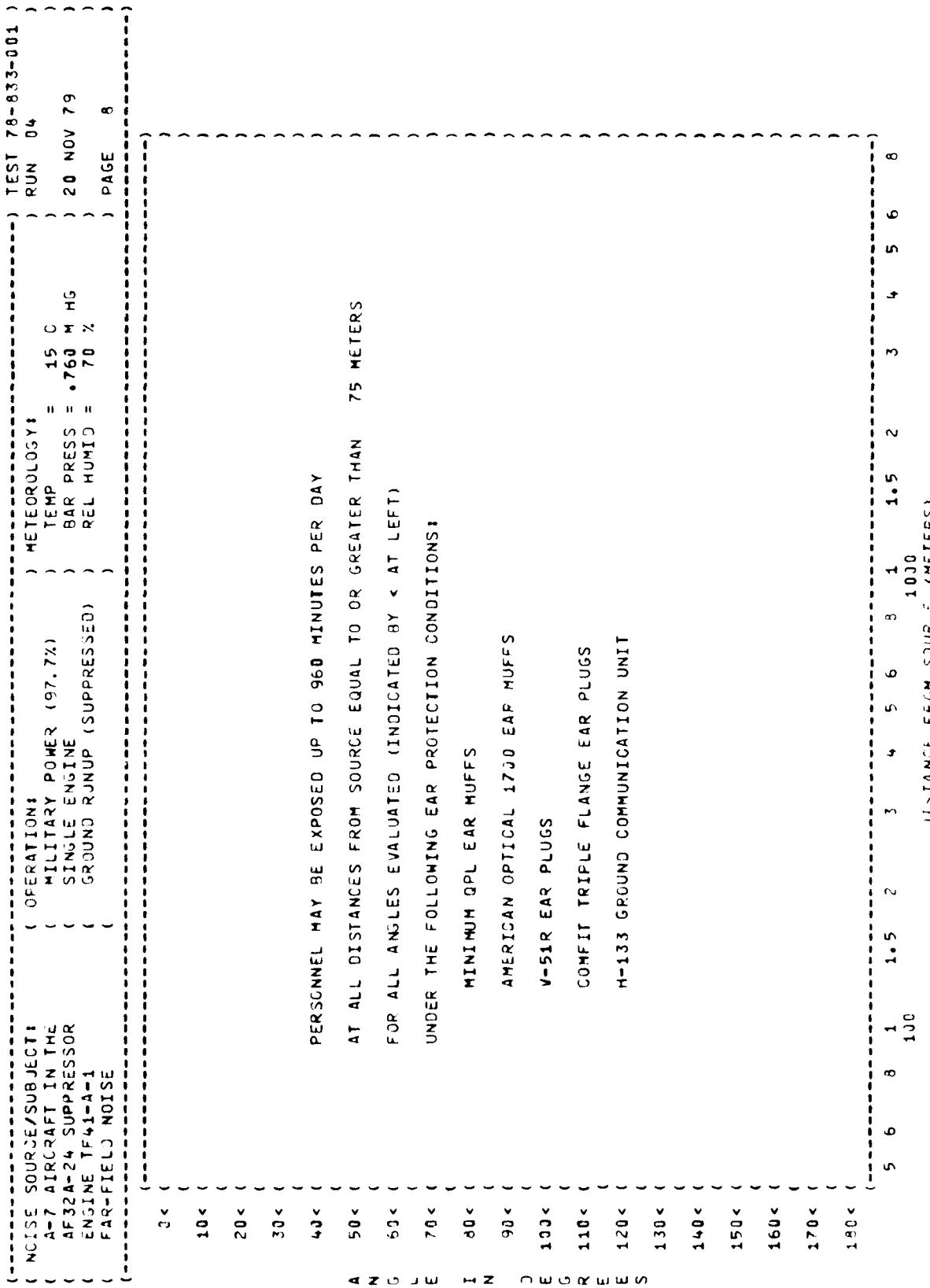
5 6 7 8 9 100 110 120 130 140 150 160 170 180

1.5 2 3 4 5 6 7 8 1 1.5 2 3 4 5 6 8

FIGURE 1
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

10

EQUAL TIME CONTOURS (MINUTES)



PROJECT: 11. SIGNAL PRESSURE LEVEL (SSC)
 EQUAL LEVEL CONTOURS (CQ)
 31.5-12 OCTAVE BAND
 NCISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF3-A-15 SUPPRESSOR
 ENGINE TFS41-4-1
 FAR FIELD NOISE

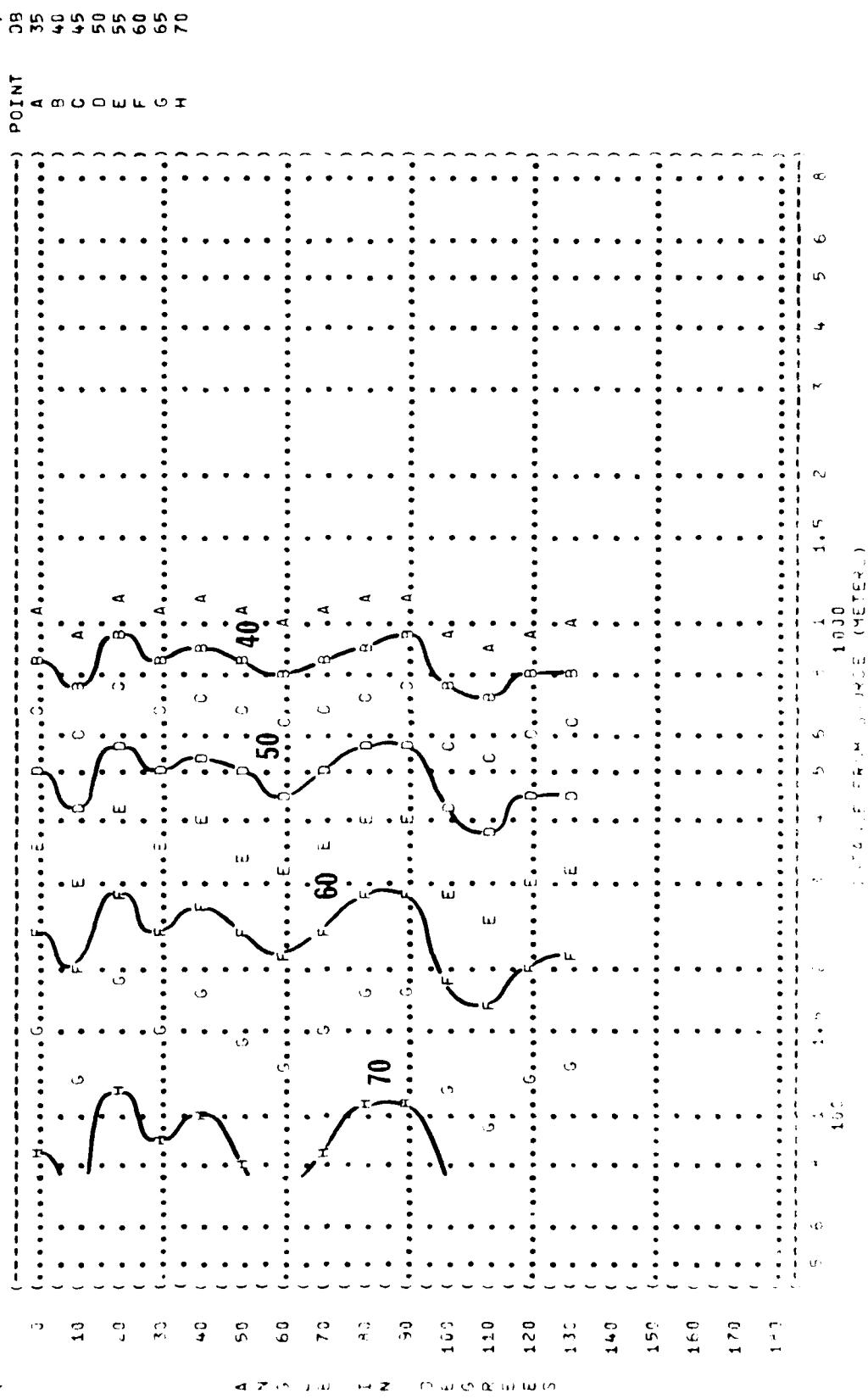
FIGURE 1. EQUAL PRESSURE LEVELS (EPL)
11
 EQUAL LEVEL CONTOURS (EQL)
 31.5-12 OCTAVE BAND
 NCISE SUBJECT:
 AIRCRAFT IN THE
 AF3-A-15 COMPRESSOR
 ENGINE T54-4-1
 FAR FIELD NCISE
 NCISE OPERATION:
 TURBINE PWR, 55% RPM
 SINGLE ENGINE
 SUPPRESSED GROUND RUMPS
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 HG
 REL HUMID = 70 %
 IDENTIFICATION:
 OMEGA 1.4
 TEST 77-833-L01
 RUN 01
 NOV 79
 PAGE 18

The graph displays five distinct curves, each representing a specific value on the Y-axis. The curves are labeled 40, 50, 60, 70, and 80. Each curve is composed of points labeled A through J, indicating a sequence or path. The X-axis is labeled "TIME IN SECONDS" and ranges from 5 to 8. The Y-axis is labeled "POINT DB" and ranges from 0 to 80. Vertical dotted grid lines are positioned at intervals of 10 on the Y-axis, and horizontal dotted grid lines are positioned at intervals of 0.5 on the X-axis.

FIG. 11E1 SUMP PRESSURE LEVEL (SPL)
 DUAL LEVEL CONTOURS (DB)
11
 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: (OPERATION:
 A-7 AIRCRAFT IN THE (IDLE PWR, 55% RPM
 AF32A-19 SUPPRESSOR (SINGLE ENGINE
 ENGINE TF41-A-1 (SUPPRESSED GROUND RUNUP
 FAR FIELD NOISE (PAGE 20

IDENTIFICATION:
 OMEGA 1.4
 TEST 77-833-001
 RUN 01
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 M HG
 REL HUMID = 70 %
 PAGE 20



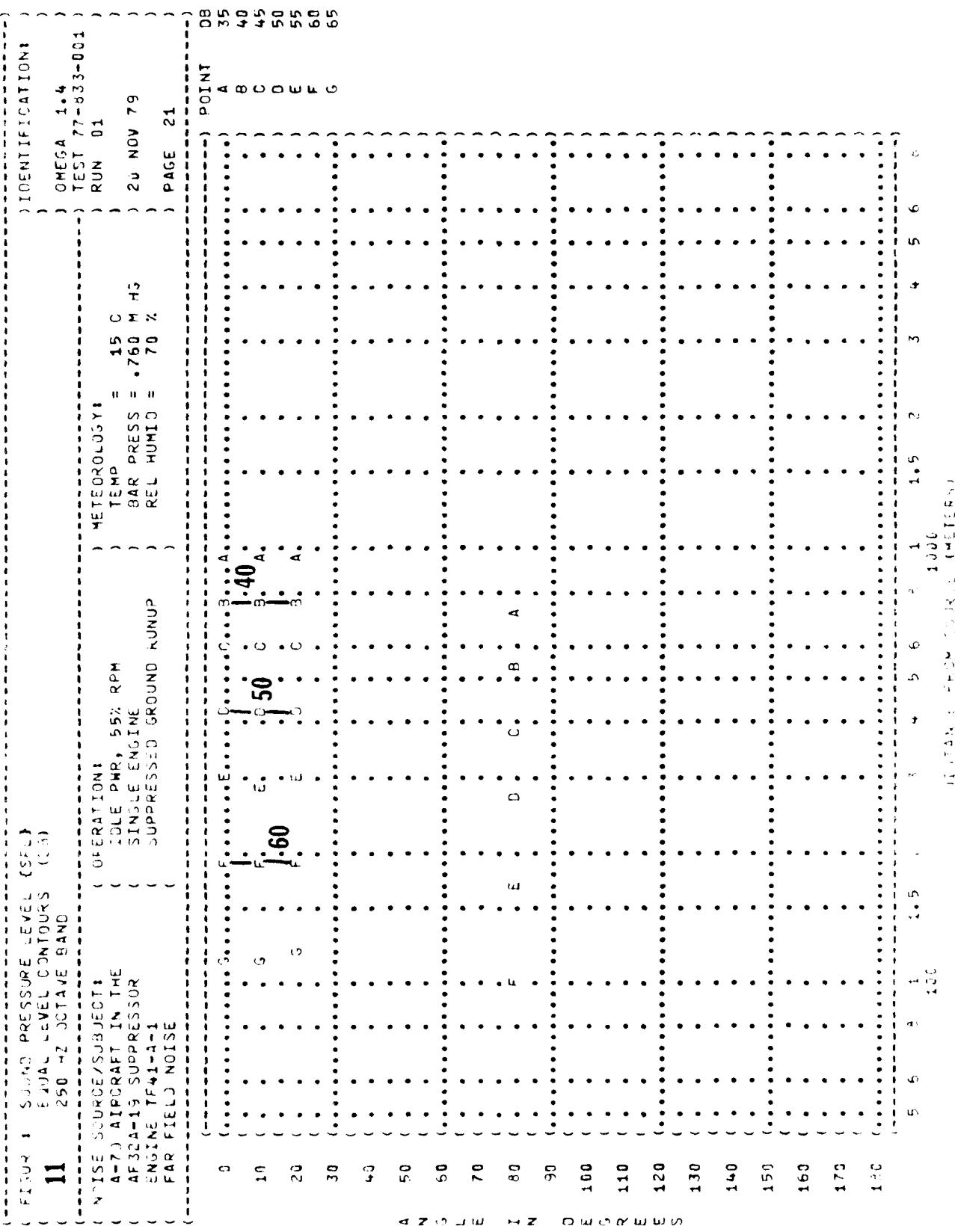
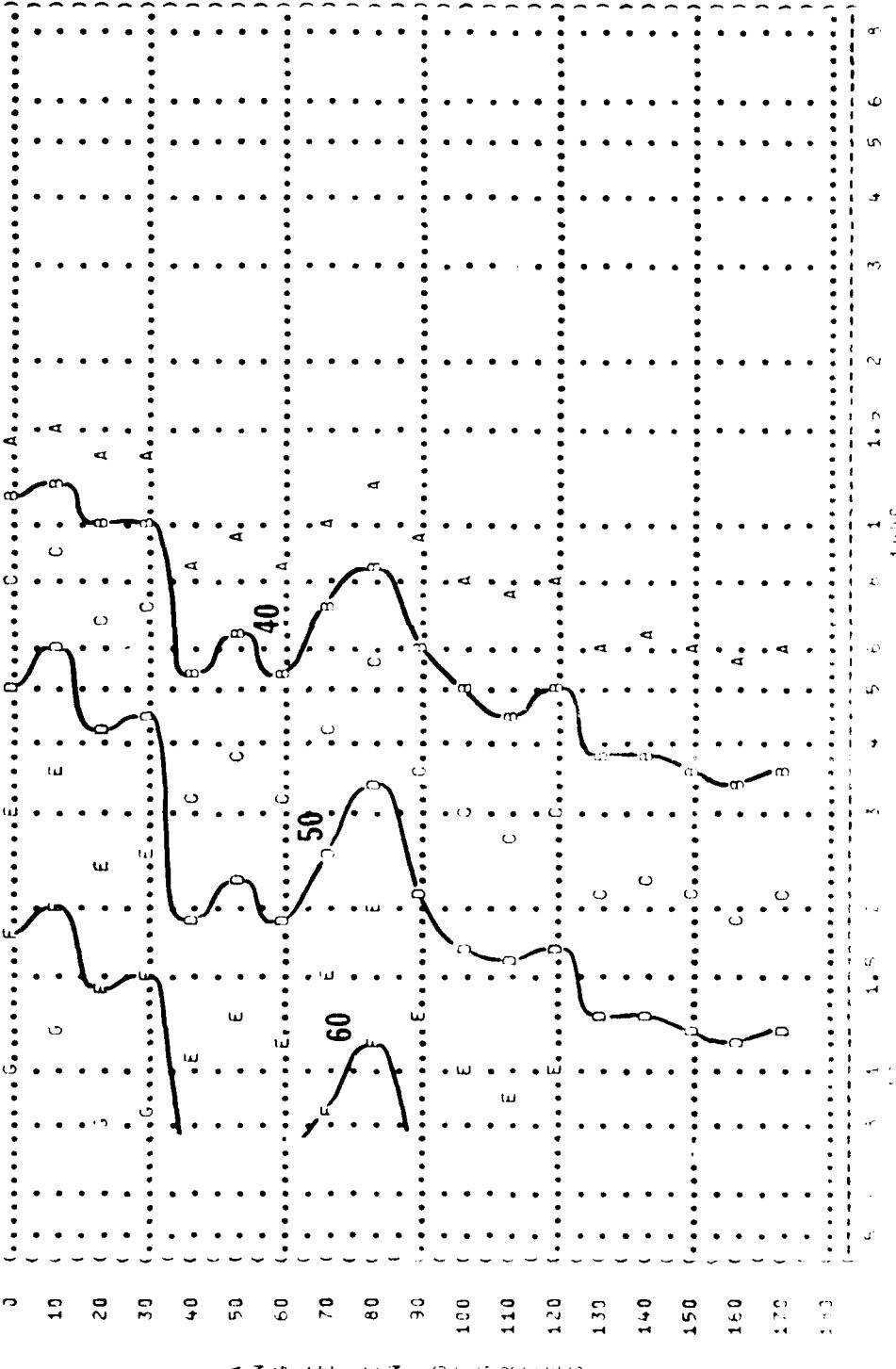


FIGURE 11. SURFACE PRESSURE LEVEL (SFL) FOR THE 500 H_{Pa} OCTAVERSE AND 500 H_{Pa} EQUATORIAL CONTOURS (DEB).

NOISE SOURCE/SUBJECT: (OPERATION:
 A-7 AIRCRAFT IN THE (IDLE PWR, 55% RPM
 AF32A-19 SUPPRESSOR (SINGLE ENGINE
 ENGINE TF41-A-1 (SUPPRESSED GROUND RUNUP

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FIGURE: SOUND PRESSURE LEVEL (SPL)
11
 EQUAL LEVEL CONTOURS (DB)
 500 Hz OCTAVE BAND
 NCIS: SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF 32-A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD
 NCIS:
 OPERATION:
 IDLE PWR, 55% RPM
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP
) IDENTIFICATION:
) TEST 77-833-01
) OMEGA 10⁴
) RUN 01
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = 1013 HG
) REL HUMID = 70 %
) PAGE 22



100 SOURCES (CONT'D)

2

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— 2 —

15 750 750

NOV 24 1968



FIGURE: SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (dB)
200 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF 32 A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
IDLE PWR, 55% RPM
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

IDENTIFICATION:
OMEGA 1.04
TEST 77-833-001
RUN 01
20 NOV 79
PAGE 24

METEOROLOGY:
TEMP = 15 C
BAR PRESS = 760 M Hg
REL HUMID = 70 %



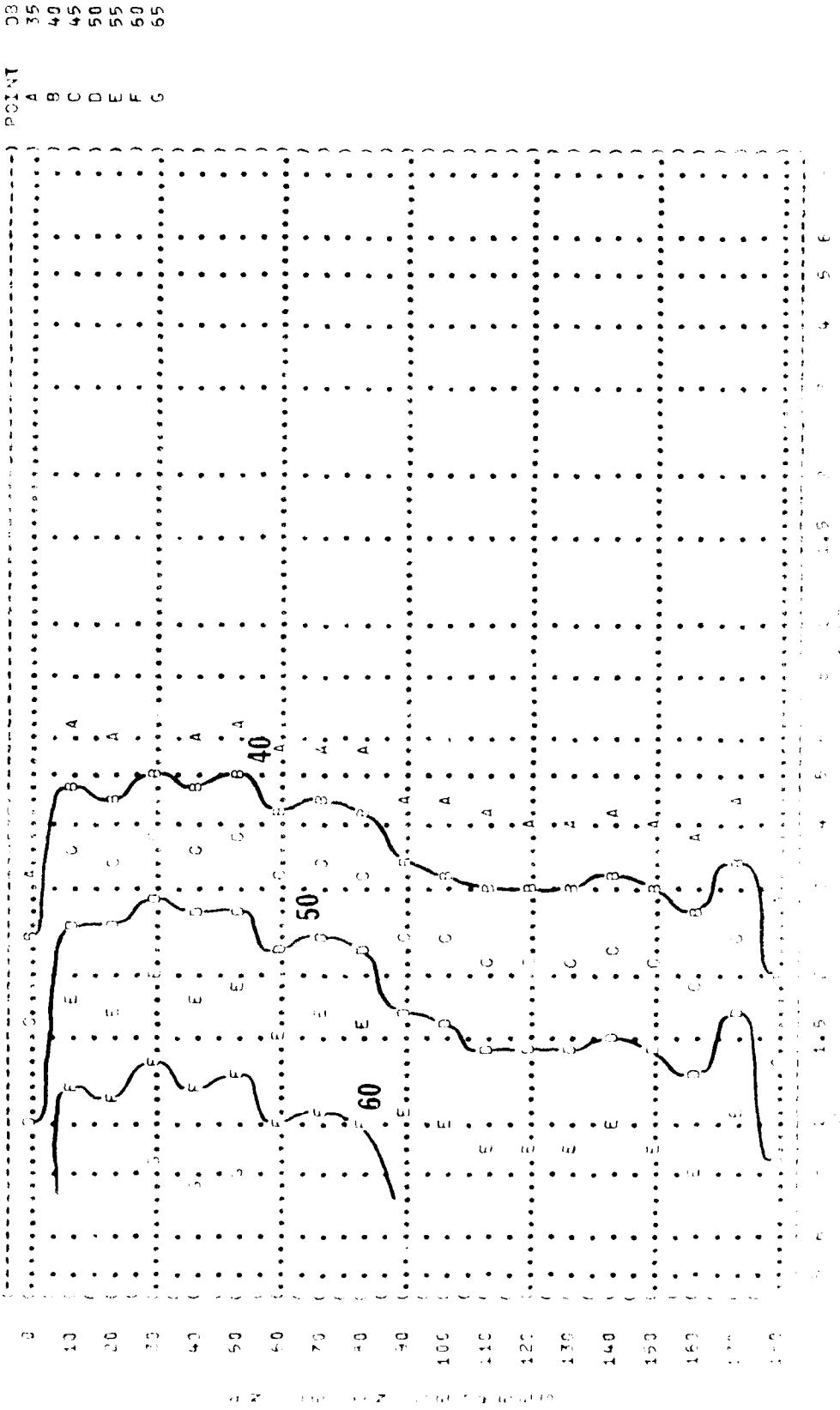
FIGURE 11
EQUILIBRIUM CONDENSATE BAN

NUMBER SUBJECT
2-2
AF32A-13 SUPERSONIC
ENGINE TEST-1
EAR FIELD NOISE

OPERATION
TURBINE RPM
SINGLE ENGINE 55% RPM
SUPPRESSOR GROUND RUNUP

METEOROLOGY
TEMP = 15°C
BAR PRESS = .760 MM HG
REL HUMID = 70%

IDENTIFICATION
OMEGA 1.04
TEST 73-37-004
RUN 01
20 NOV 72
PAGE 25



AD-A090 618

AIR FORCE AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATT--ETC F/6 1/3
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 130. A-7 AIRC--ETC(U)
JUL 80 R A LEE
UNCLASSIFIED AMRL-TR-75-50-VOL-130

2 LF 2

ADA
09016 H

MN

END
DATE FILMED
11-80
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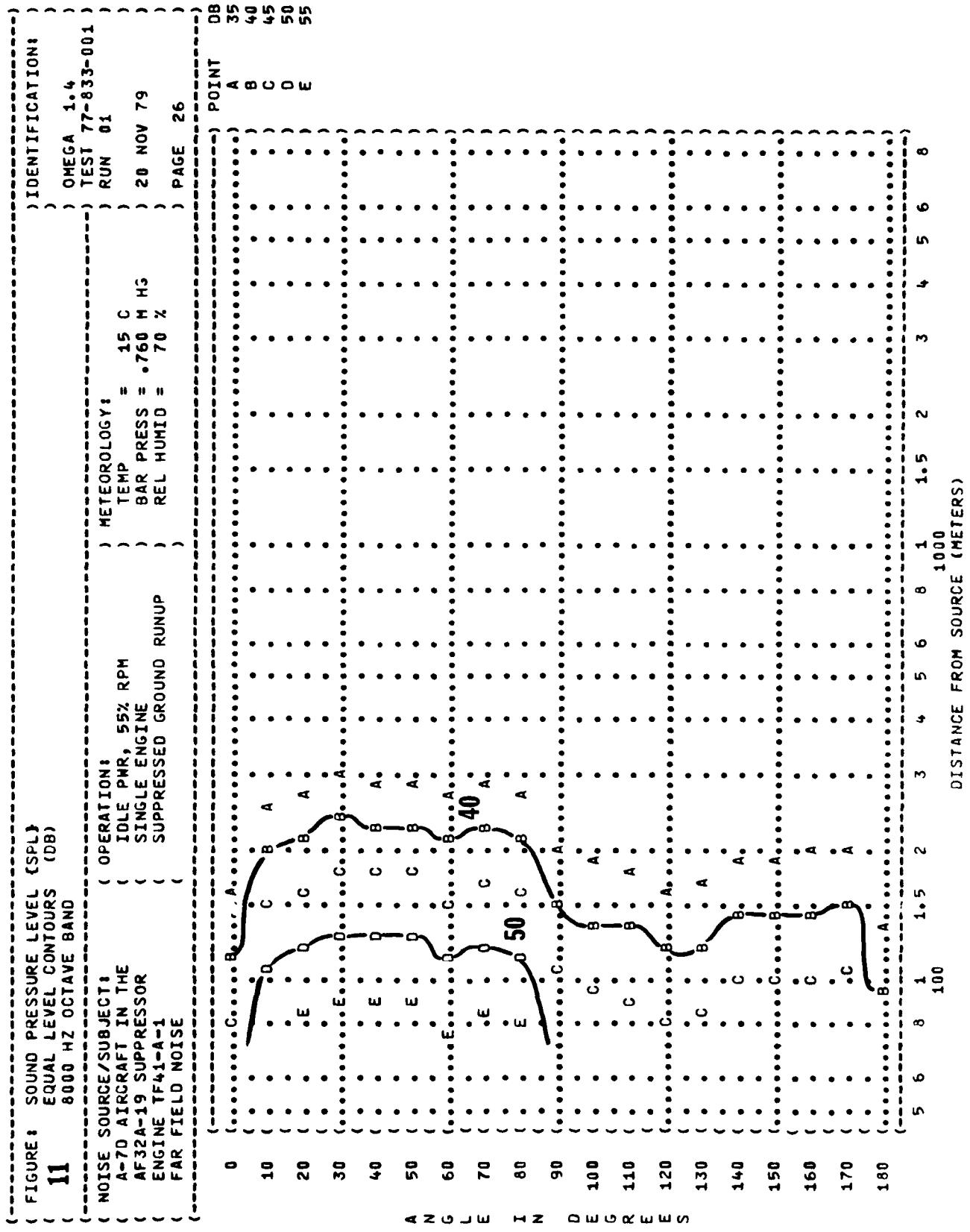


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
11 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF 32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR. PRESS = .760 M Hg
REL HUMID = 70 %

TEST 78-833-001
RUN 01
20 NOV 79
PAGE 18

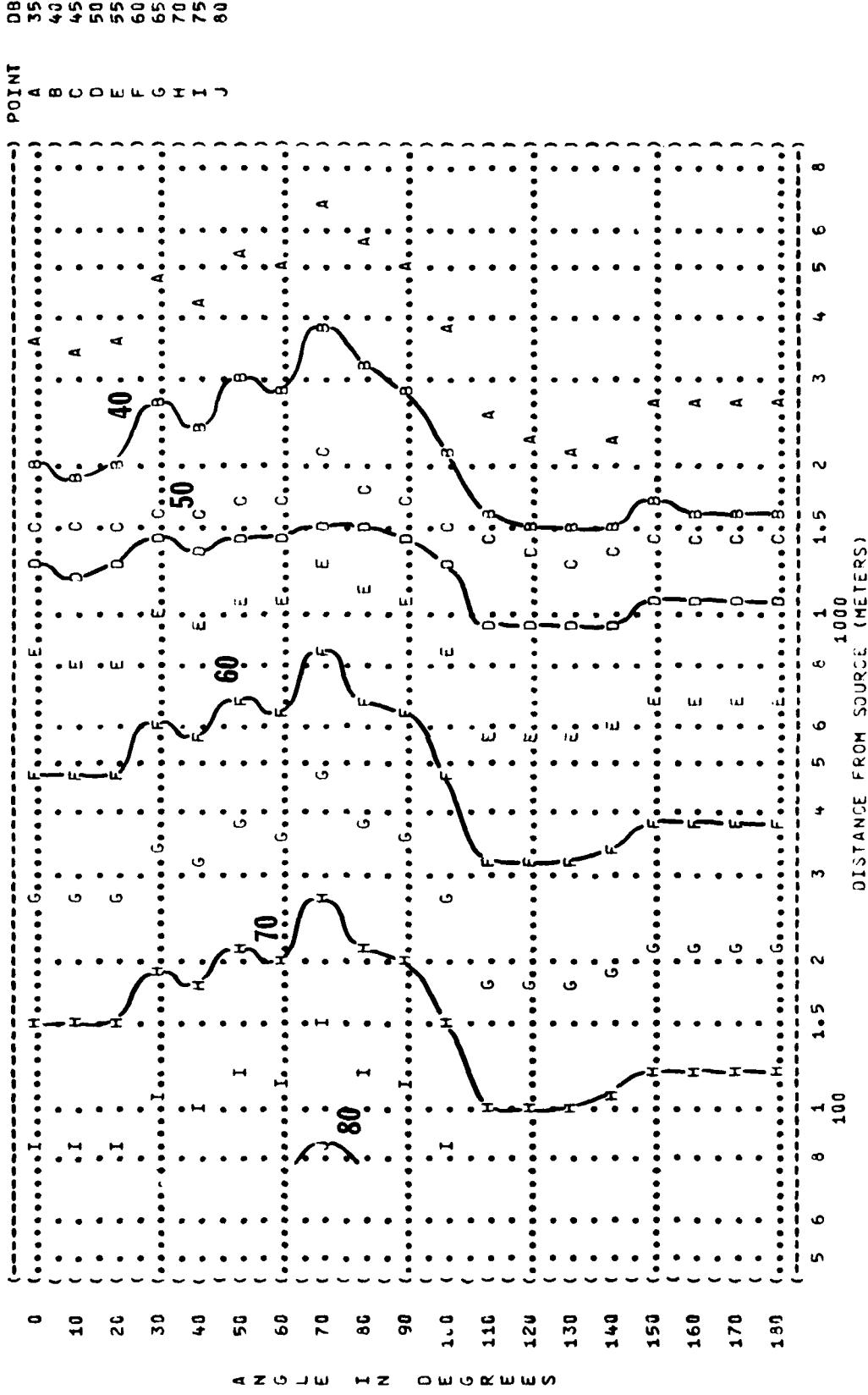


FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT 1
A-7 AIRCRAFT IN THE
AF32A-2⁴ SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION!
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

TEST 78-833-001
RUN 01
20 NOV 79
PAGE 19

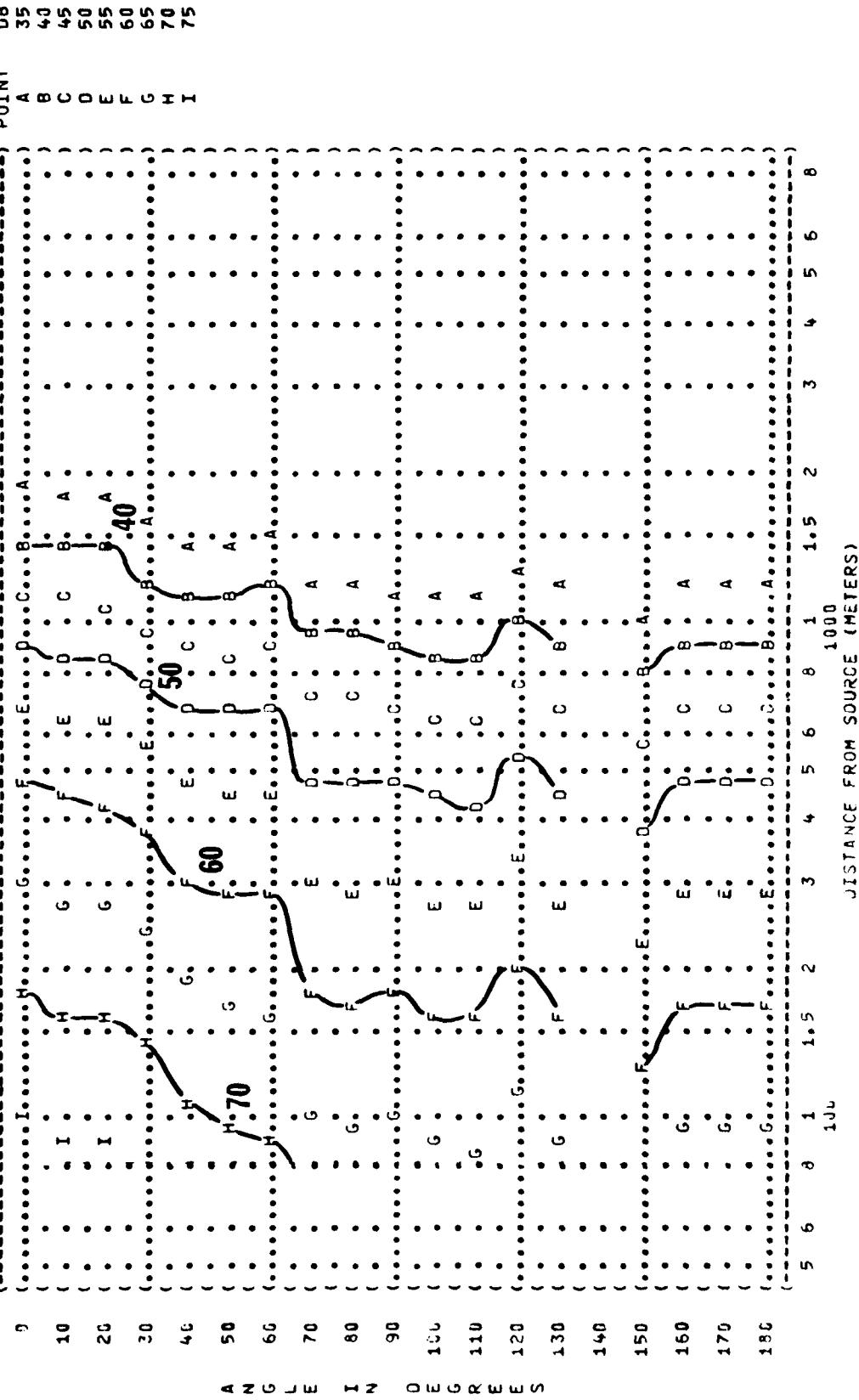


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 125 Hz OCTAVE BAND

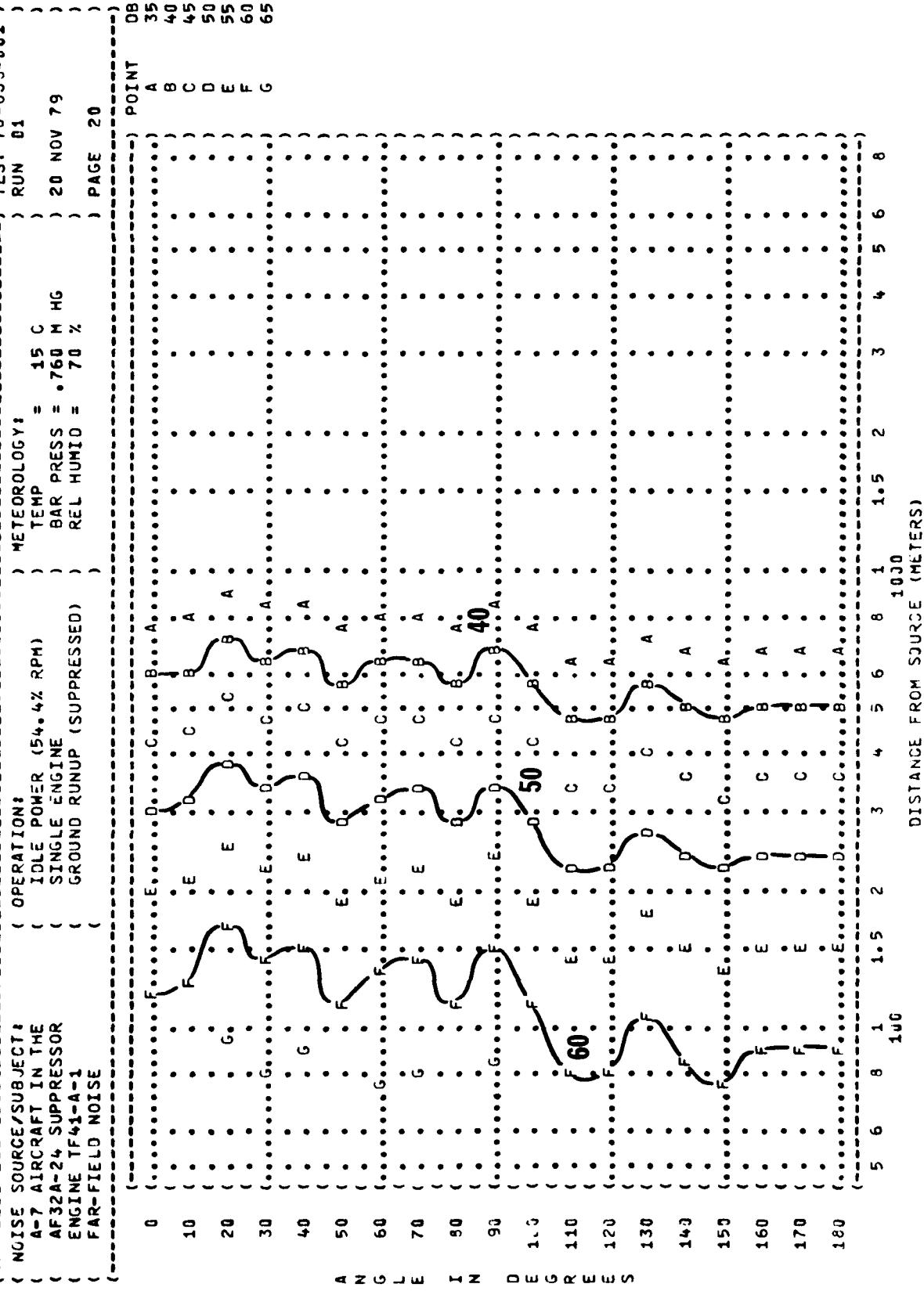


FIGURE 11
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 Hz OCTAVE BAND

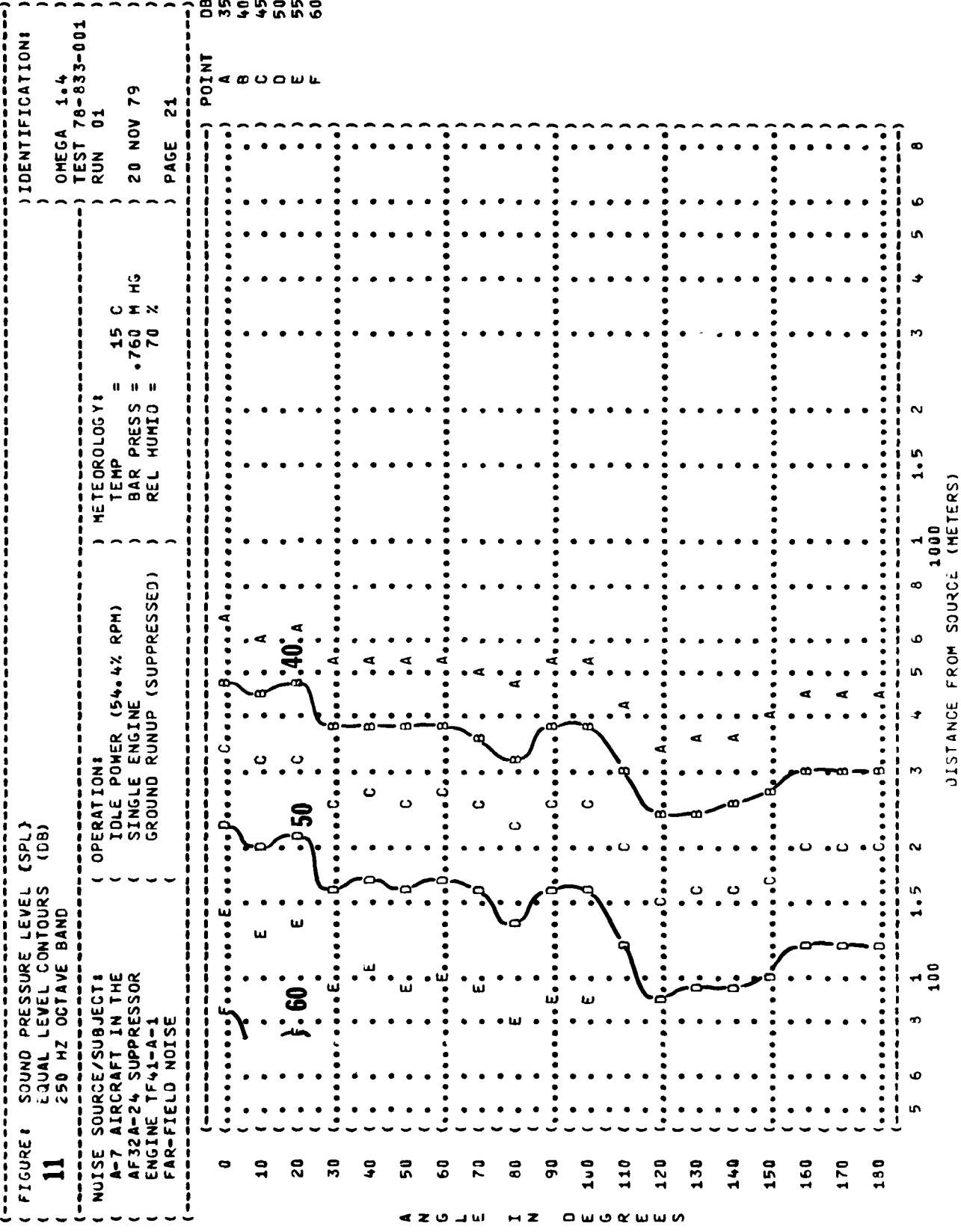


FIGURE 4 SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (DB)
500 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

TEST 78-833-001
RUN 01

OMEGA 1.4

20 NOV 79

PAGE 22

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

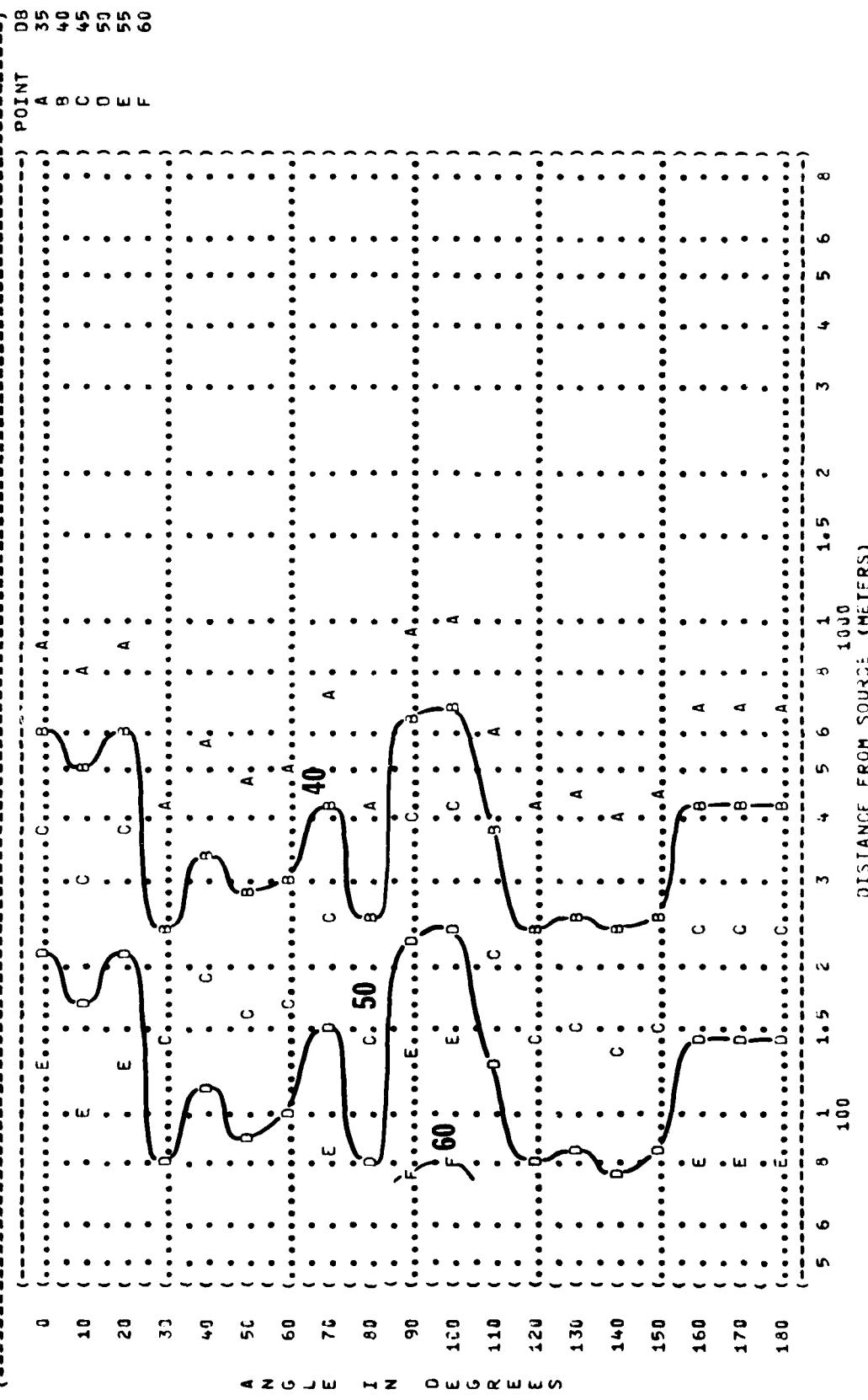


FIGURE: SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (0B)
1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 25 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

RUN 01
TEST 78-833-001
20 NOV 79
PAGE 23

IDENTIFICATION:
OMEGA 1.4

TEST 78-833-001
RUN 01
20 NOV 79
PAGE 23



DISTANCE FROM SOURCE (METERS)

1000

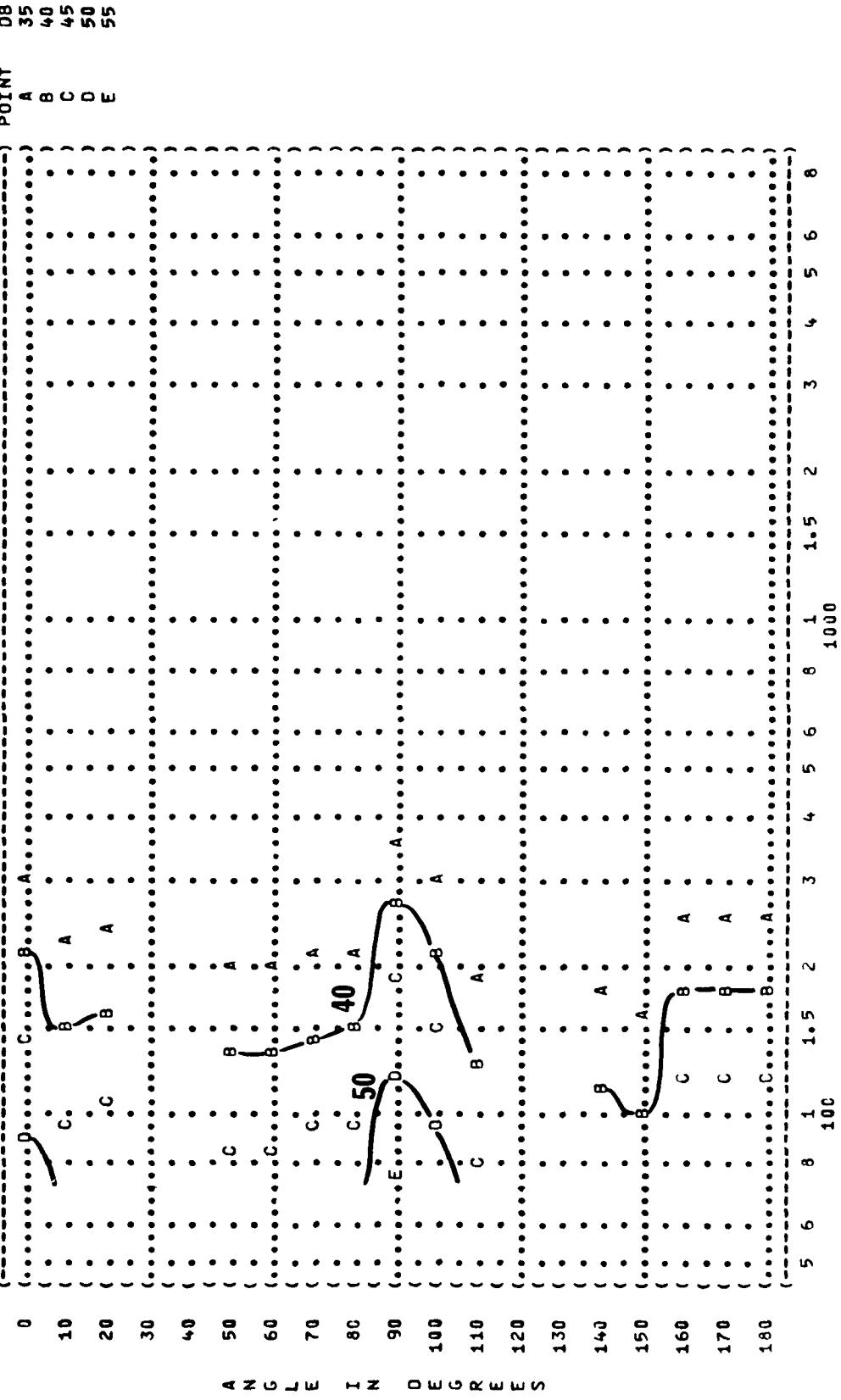
FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
11
4000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATIONS:
IDLE POWER (54.4% RPM)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 MM HG
REL HUMID = 70 %

TEST 78-833-001
RUN 01
OMEGA 1.4
PAGE 25



```
{ FIGURE: SOUND PRESSURE LEVEL (SPL)
{ EQUAL LEVEL CONTOURS (DB)
{ 11 8000 Hz OCTAVE BAND
{ }

{ NOISE SOURCE/SUBJECT:
{ A-7 AIRCRAFT IN THE
{ AF32A-24 SUPPRESSOR
{ ENGINE TF41-A-1
{ FAR-FIELD NOISE
{ }
```

```
{ ) IDENTIFICATION:
{ ) OMEGA 1.4
{ ) TEST 78-833-001
{ ) RUN 01
{ ) METEOROLOGY:
{ ) TEMP = 15 C
{ ) BAR PRESS = .760 N HG
{ ) 20 NOV 79
{ ) REL HUMID = 70 %
{ ) PAGE 26
{ )
```

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{ NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0)
{ OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL.
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FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-70 AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = 760 MM HG
REL HUMID = 70 %

TEST 77-833-001
RUN 02
20 NOV 79
PAGE 18

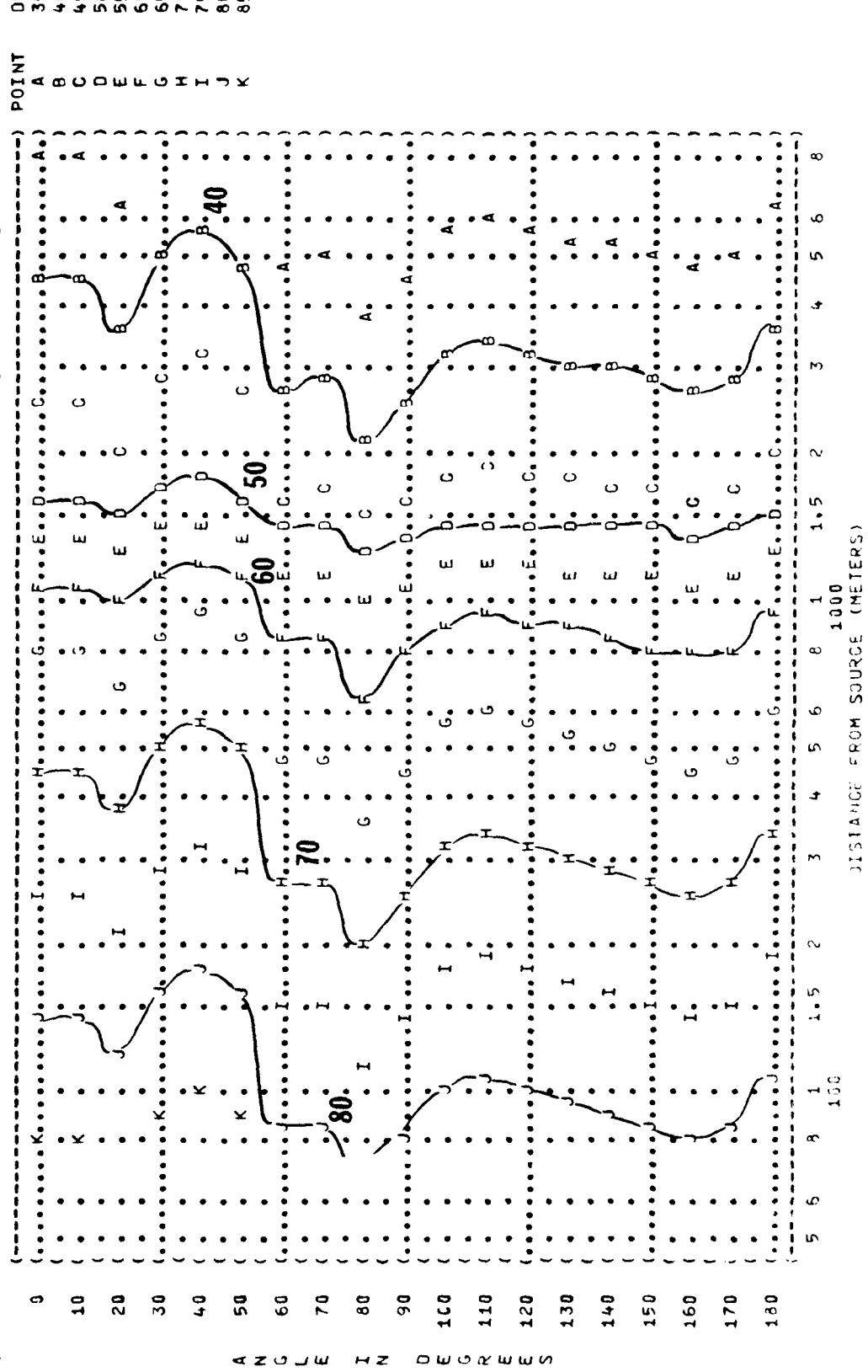


FIGURE 11
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (63)
63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7J AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST 77-833-001
RUN 02
20 NOV 79
PAGE 19

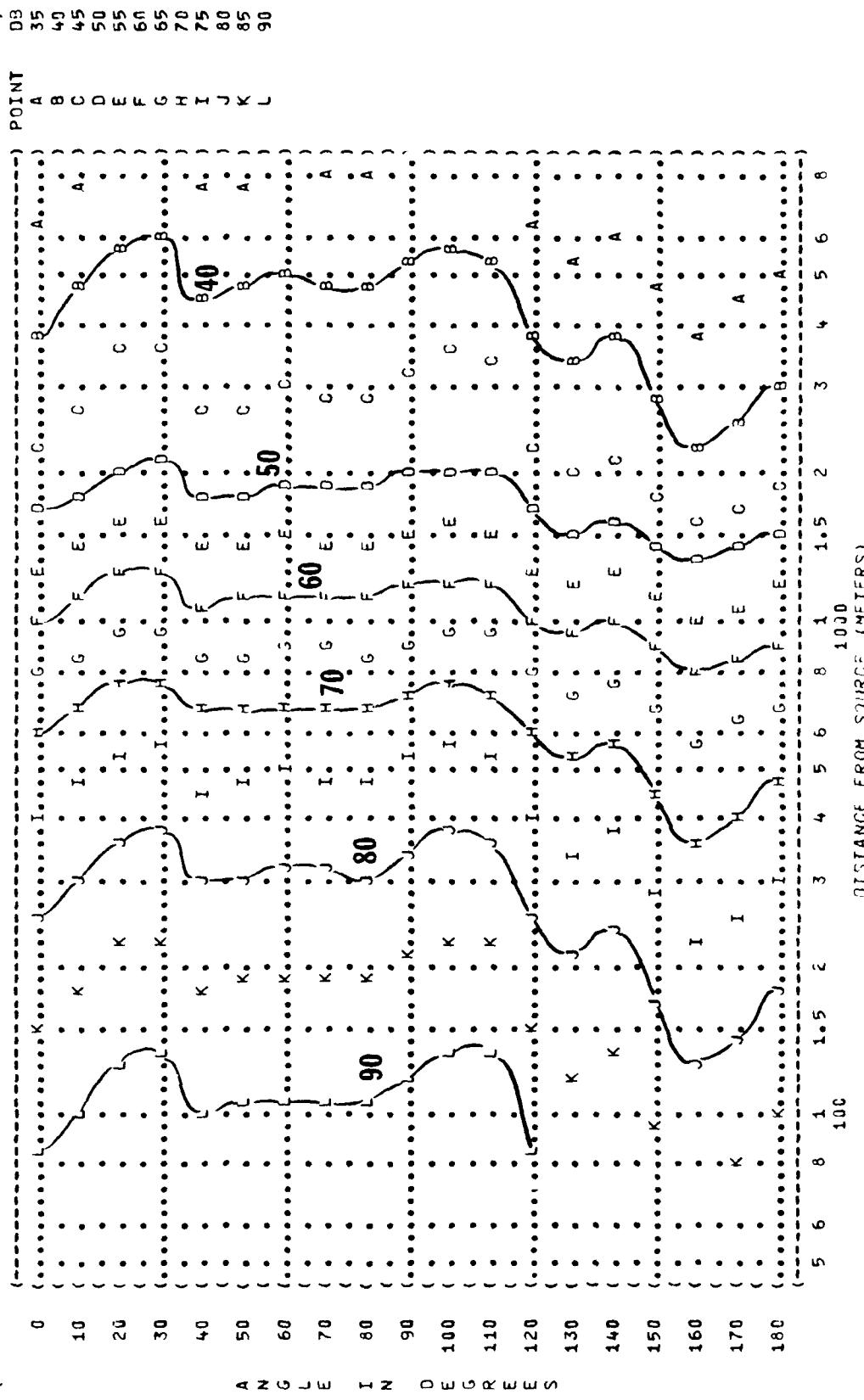


FIGURE: SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (dB)
 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-70 AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 70% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-833-001
 RUN 02
 20 NOV 79
 PAGE 20

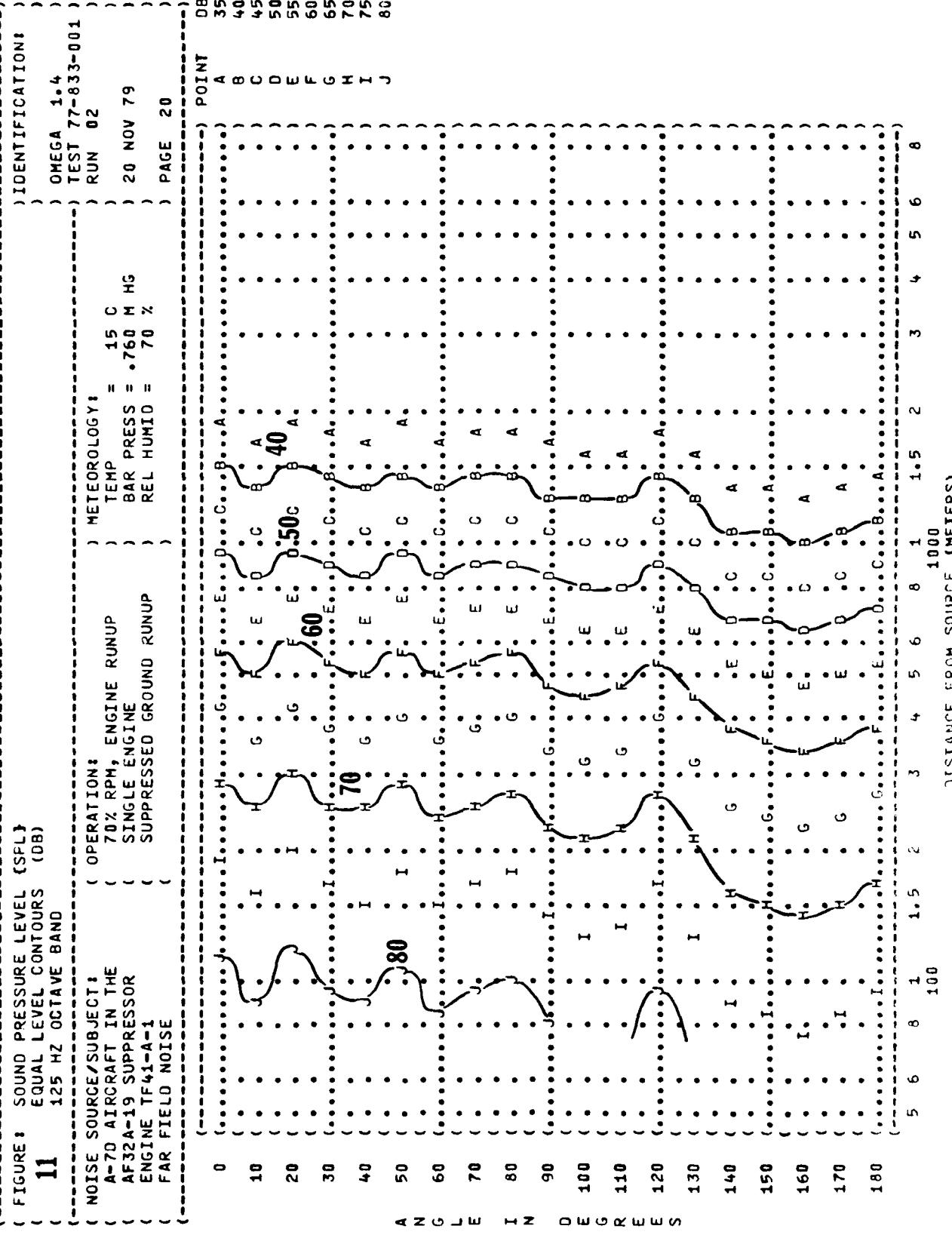


FIGURE 11
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
250 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT 1
A-7D AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

IDENTIFICATION:

OMEGA 1.4

TEST 77-833-001

RUN 02

TEMP = 15 C

BAR PRESS = .760 MMG

REL HUMID = 70 %

PAGE 21

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 MMG
REL HUMID = 70 %

POINT
DB
A 35
B 40
C 45
D 50
E 55
F 60
G 65
H 70
I 75

A

B

C

D

E

F

G

H

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J

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{ FIGURE 11 SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: A-70 AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION: 70% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY: TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-833-001
 RUN 02
 20 NOV 79
 PAGE 22

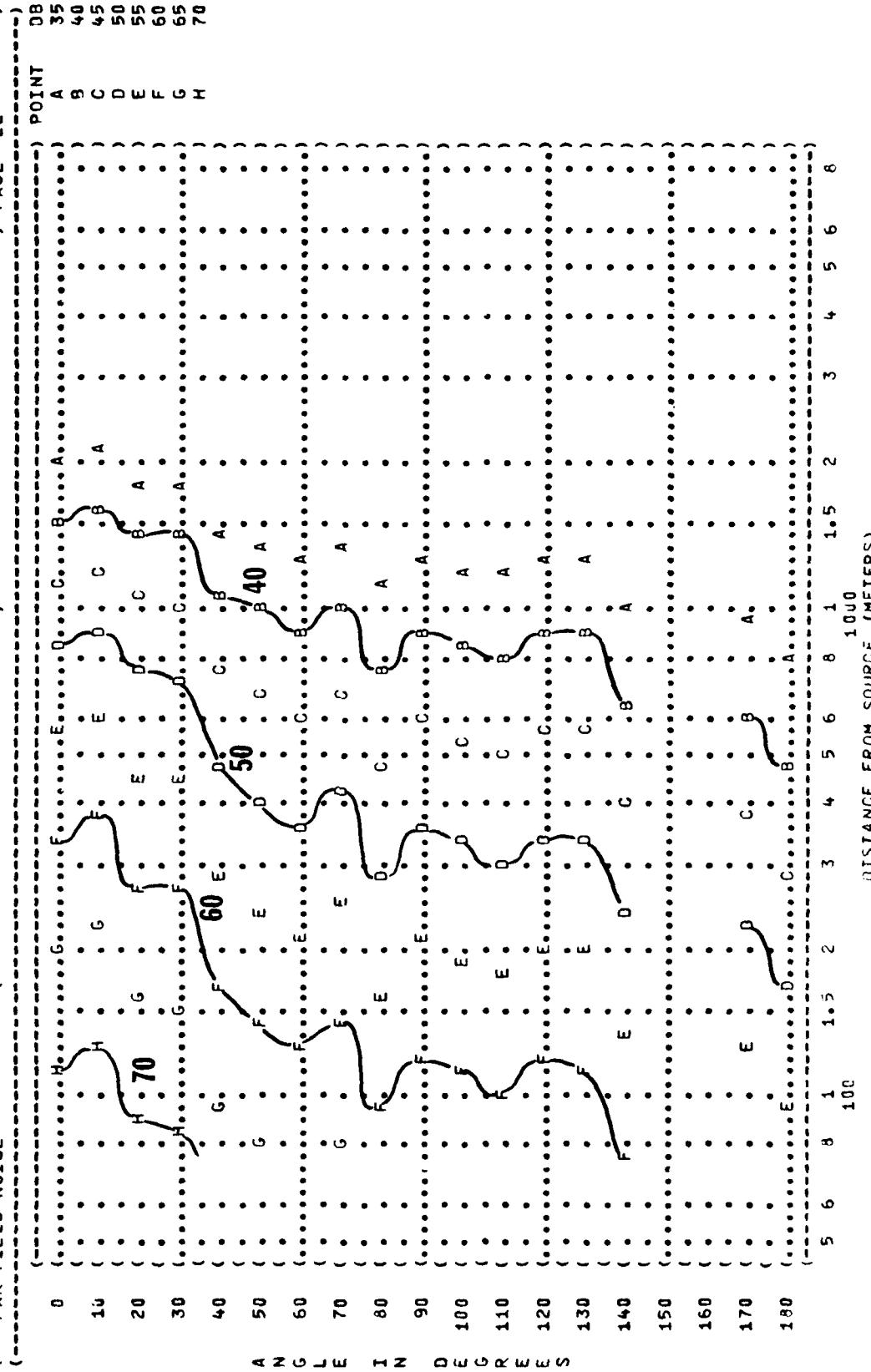


FIGURE 1
11 1000 Hz OCTAVE BAND
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
A-70 AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

TEST 77-833-n01
RUN 02
20 NOV 79
PAGE 23

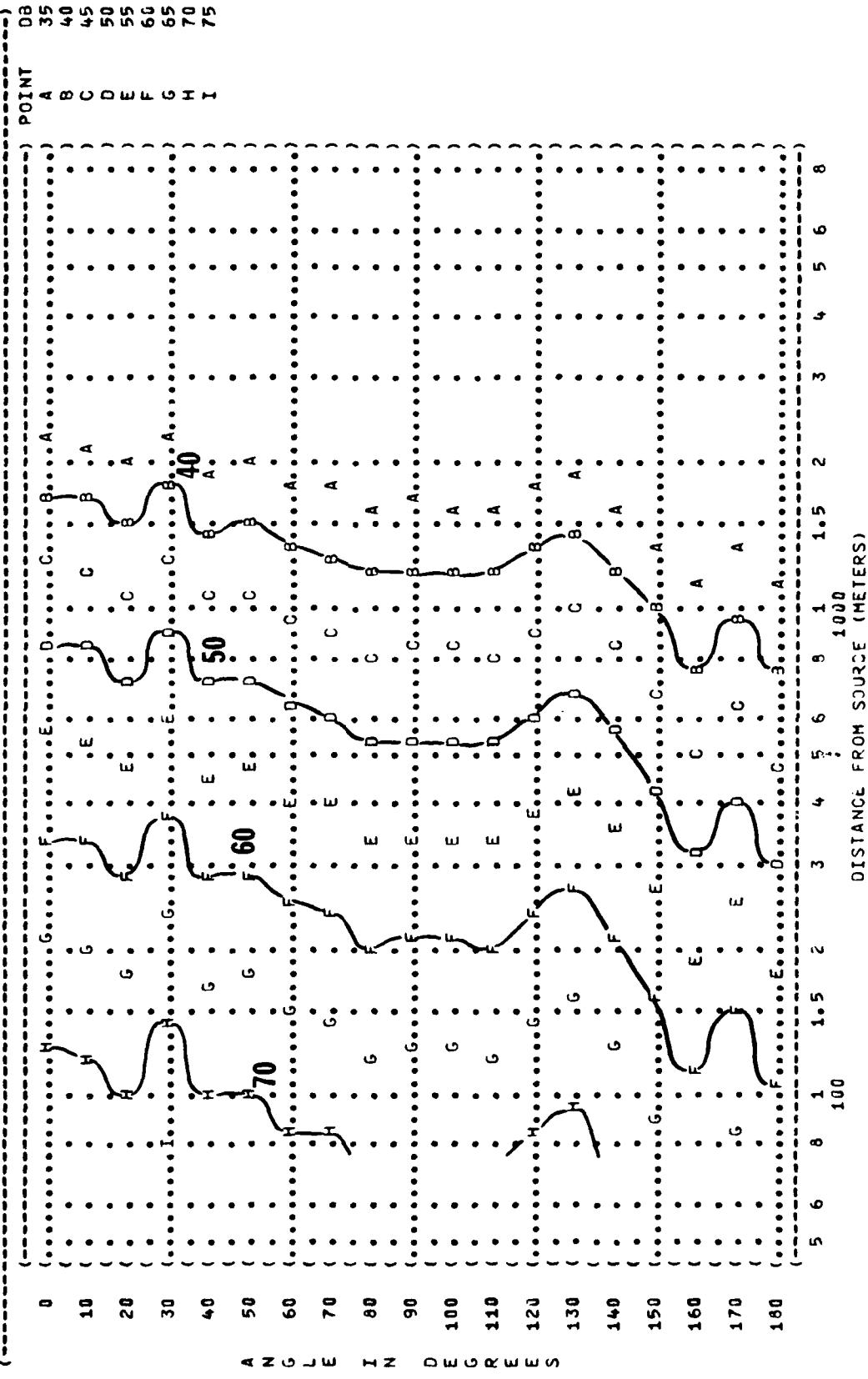


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7D AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 70 RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 20 NOV 79
 PAGE 24

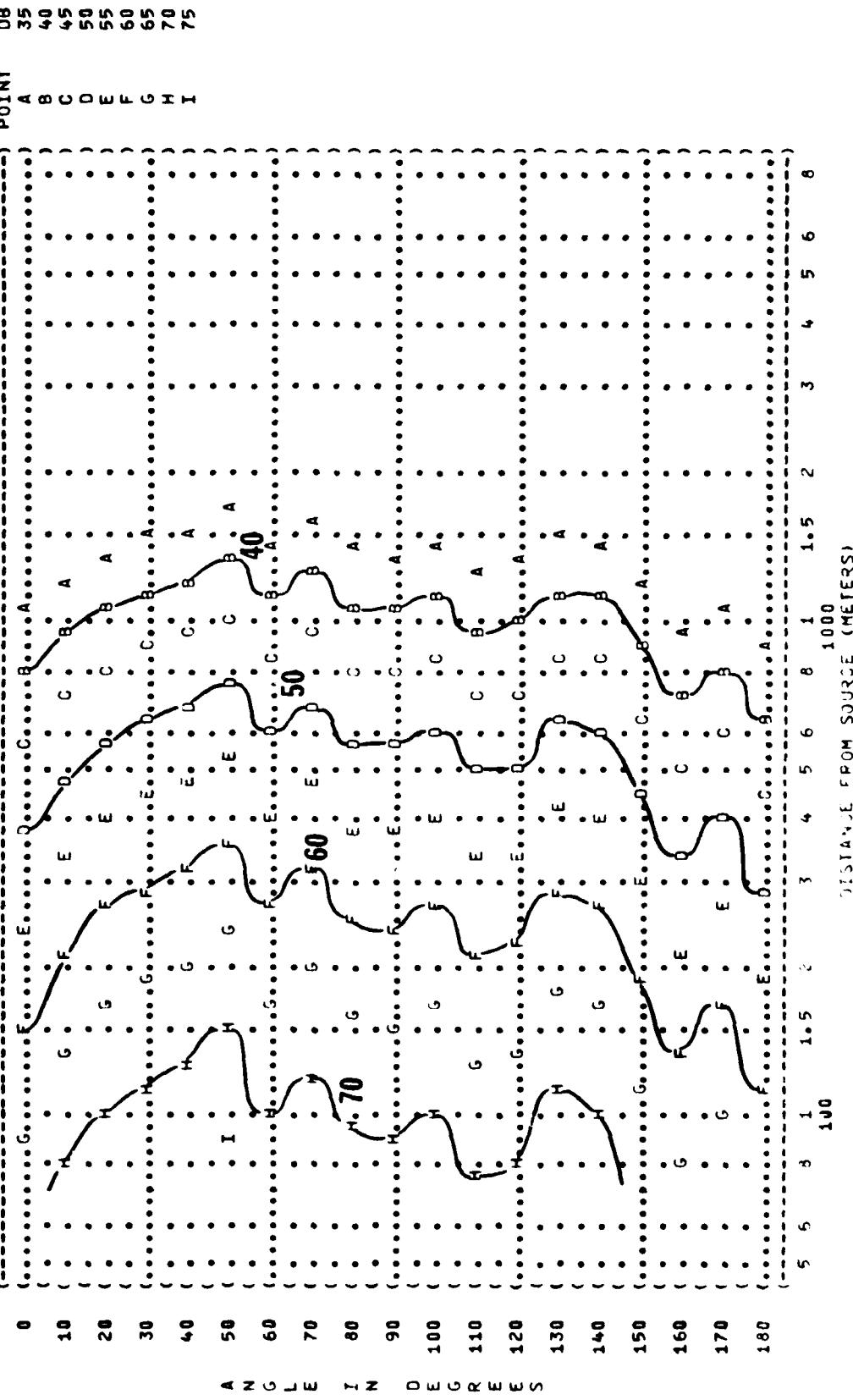


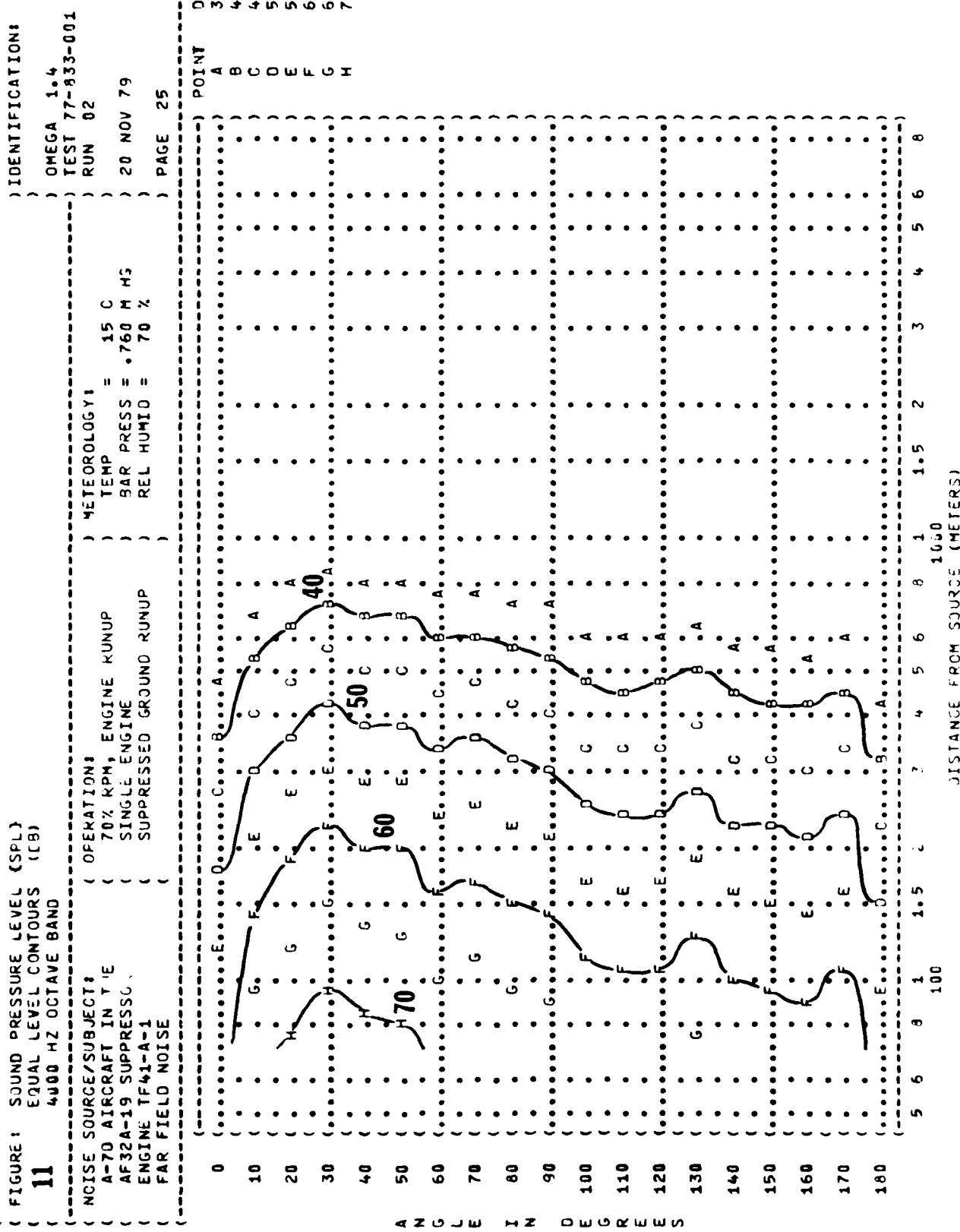
FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
11 4000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-70 AIRCRAFT IN T-E
AF32A-19 SUPPRESSC.
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
70% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = 760 Hg
REL HUMID = 70 %

TEST 77-833-001
RUN 02
PAGE 25



(FIGURE 1 SOUNO PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS
 8000 Hz OCTAVE BAND

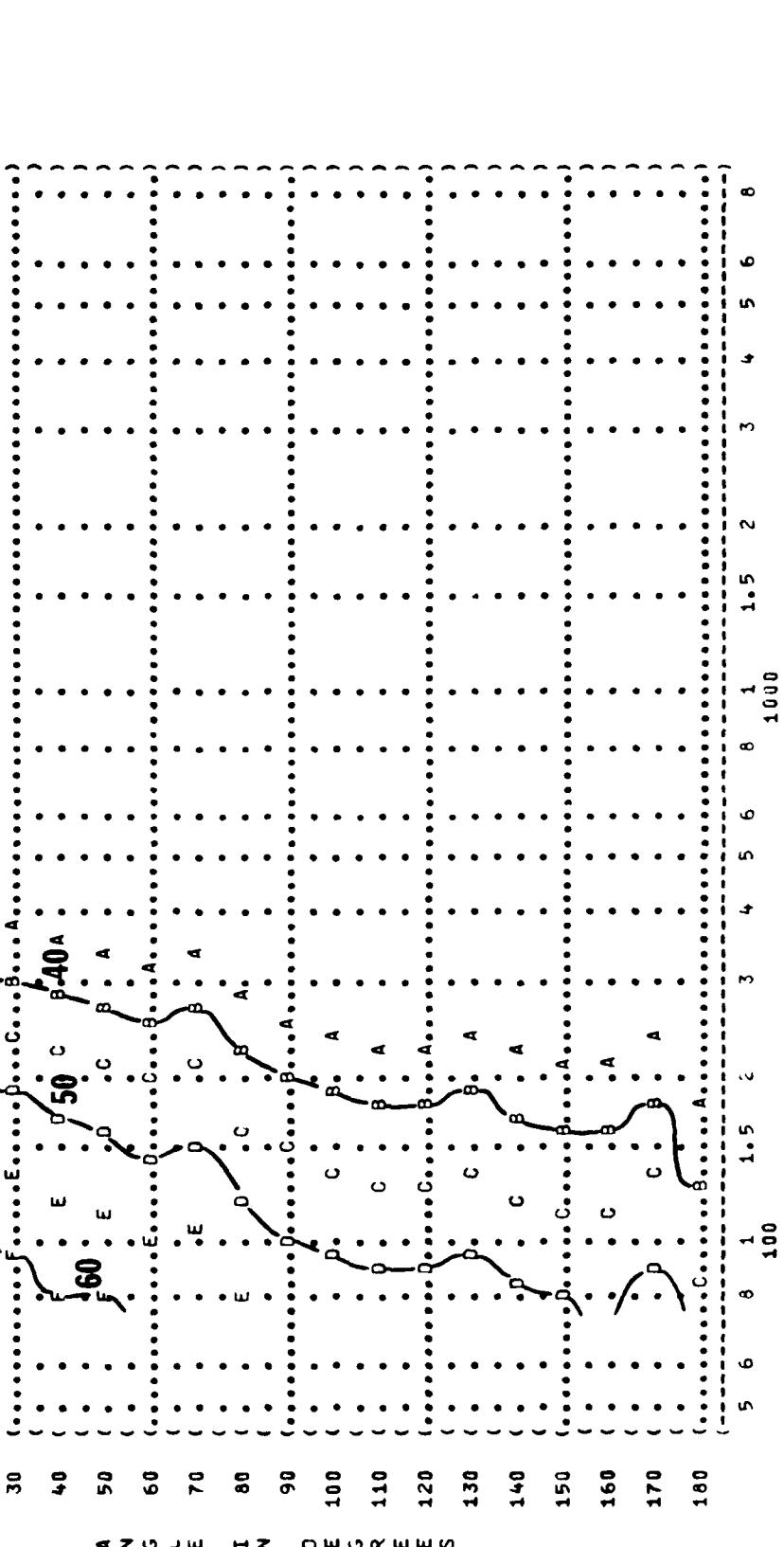
NOISE SOURCE/SUBJECT: (OPERATION:
 A-70 AIRCRAFT IN THE (70% RPM, ENGINE RUNUP)
 AF32A-19 SUPPRESSOR (SINGLE ENGINE)
 ENGINE TF41-A-1 (SUPPRESSED GROUND RUNUP)
 FAR FIELD NOISE (

) METEOROLOGY:
 RUN 02

) TEMP = 15 C
 BAR PRESS = .760 HG
 REL HUMID = 70 %

) PAGE 26

) POINT DB
 A 35
 B 40
 C 45
 D 50
 E 55
 F 60



DISTANCE FROM SOURCE (METERS)

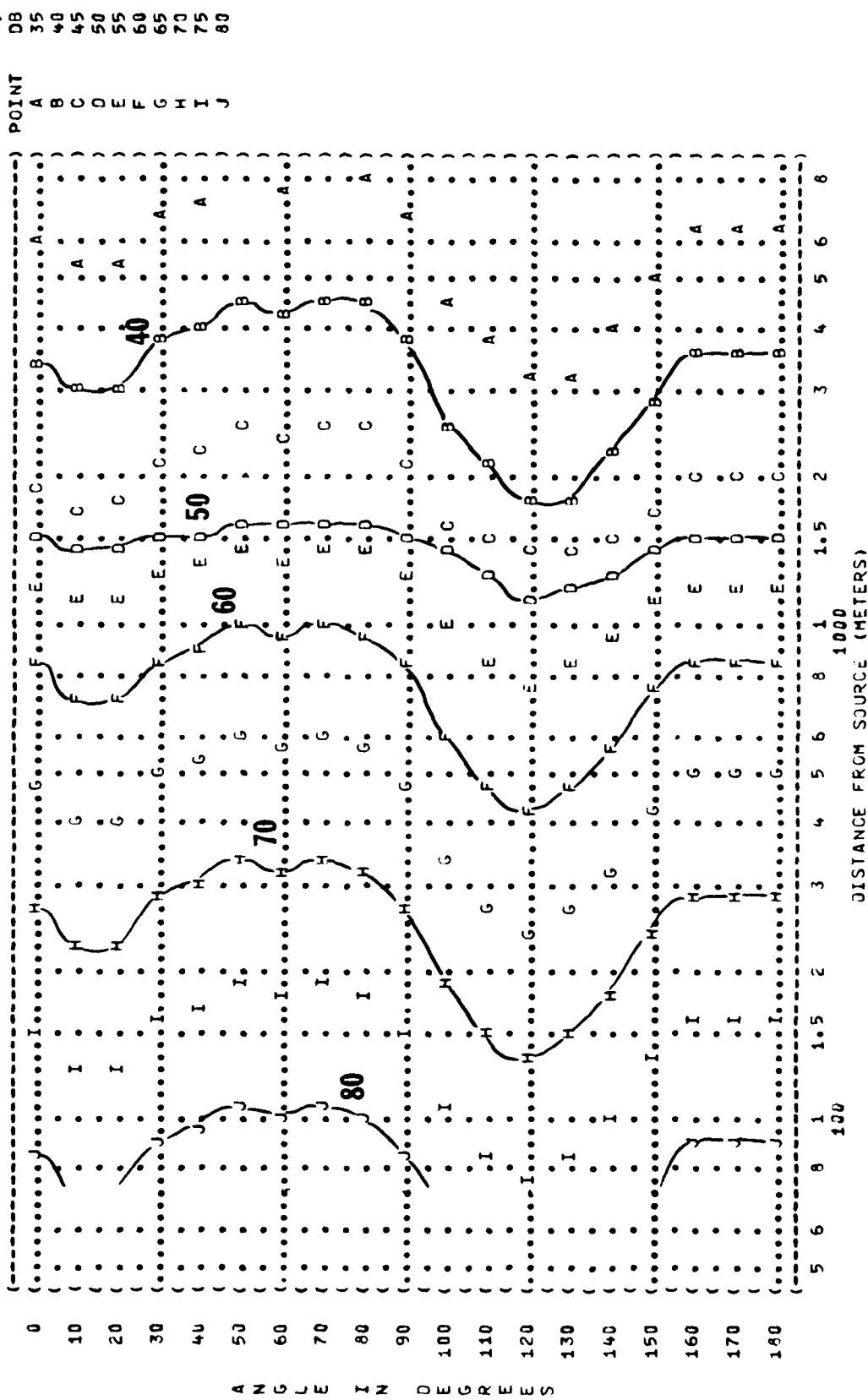
FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
11 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
70% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 N Hg
REL HUMID = 70 %

TEST 78-833-001
RUN #2
20 NOV 79
PAGE 18



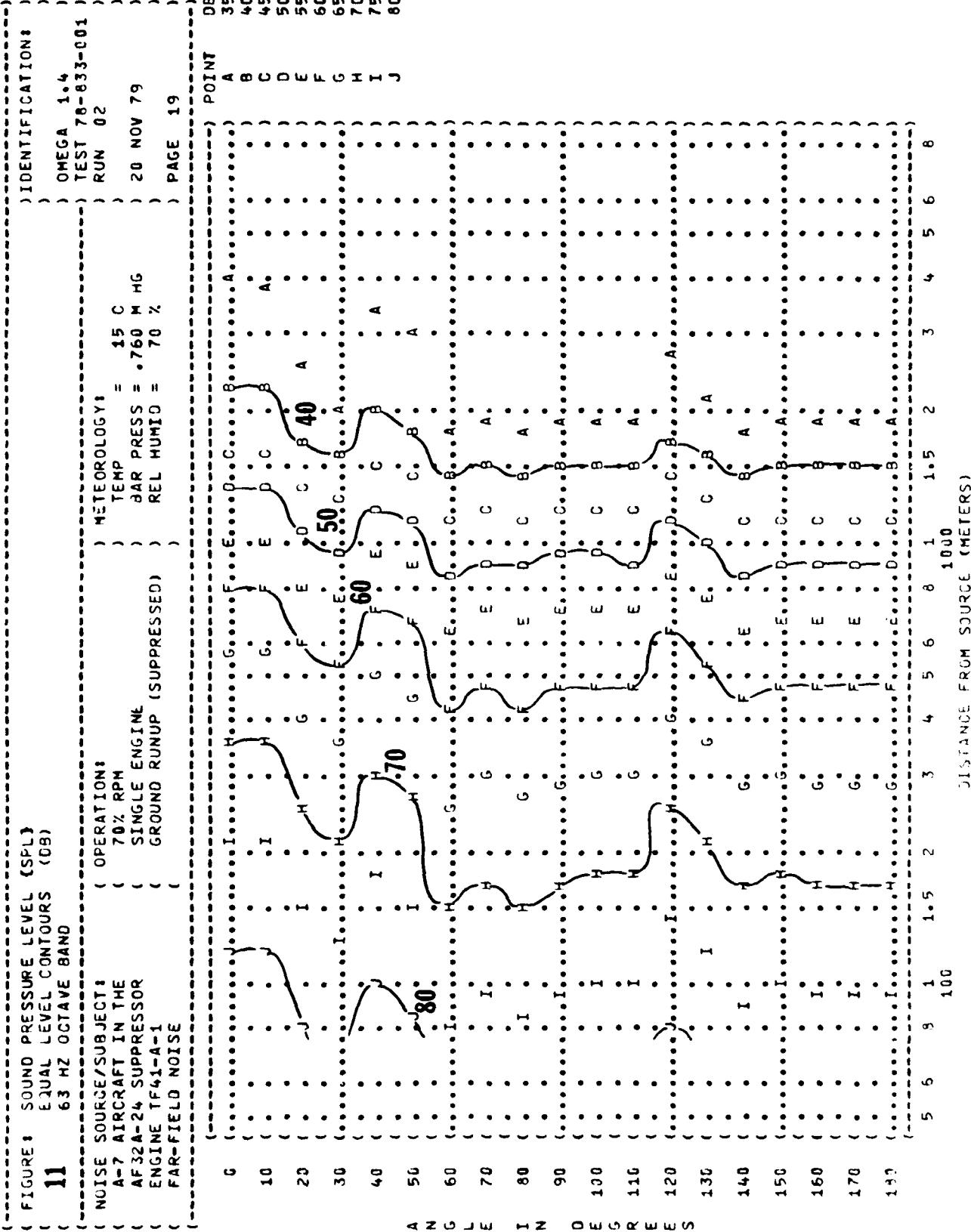


FIGURE 1. SOUND PRESSURE LEVEL (SPL)
11
 EQUAL LEVEL CONTOURS (DB)
 125 Hz OCTA E BAND

SOURCE SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPERSONIC
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 70% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 78-833-601
 RUN 02
 20 NOV 79
 PAGE 20

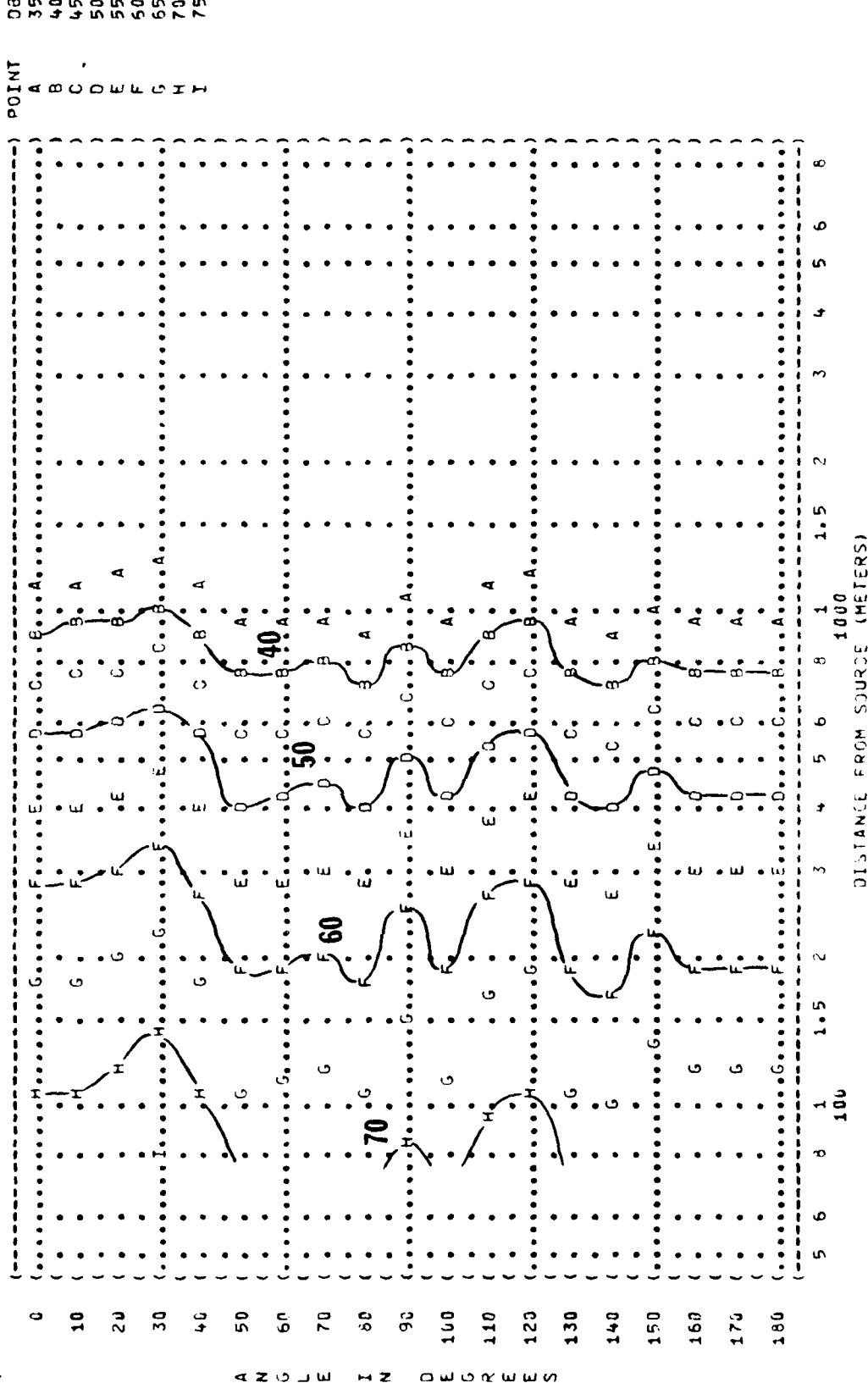


FIGURE 8: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 11 250 Hz OCTAVE BAND

INCISE SOURCE/SUBJECT:	OPERATION:
A-7 AIRCRAFT IN THE	70% RPM
AF32A-24 SUPPRESSOR	SINGLE E
ENGINE TF41-A-1	GROUND R
FAR-FIELD NOISE	

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS
11
 250 Hz OCTAVE BAND

(NOISE SOURCE/SUBJECT: 1 (OPERATION:
 (A-7 AIRCRAFT IN THE (70% RPM
 (AF32A-24 SUPPRESSOR (SINGLE ENGINE
 (ENGINE T41-A-1 (GROUND RUNUP (SUPPRESSED)
 (FAR-FIELD NOISE (

) IDENTIFICATION:
)
) OMEGA 1.4
) TEST 78-833-001
)
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 Hg
) REL HUMID = 70 %
)
) RUN 02
)
) 20 NOV 79
)
) PAGE 21

The graph shows the relationship between time (X-axis) and points (Y-axis). The X-axis ranges from 0 to 180 with increments of 10. The Y-axis ranges from 0 to 60 with increments of 5. There are six data series labeled A through F, each represented by a different symbol: open circles, solid dots, crosses, squares, diamonds, and solid circles. Series A starts at (0, 40), peaks at (10, 45), dips to (20, 40), rises to (30, 45), dips to (40, 40), rises to (50, 45), dips to (60, 40), rises to (70, 45), dips to (80, 40), rises to (90, 45), dips to (100, 40), rises to (110, 45), dips to (120, 40), rises to (130, 45), dips to (140, 40), rises to (150, 45), dips to (160, 40), rises to (170, 45), and ends at (180, 40). Series B starts at (0, 35), peaks at (10, 38), dips to (20, 35), rises to (30, 38), dips to (40, 35), rises to (50, 38), dips to (60, 35), rises to (70, 38), dips to (80, 35), rises to (90, 38), dips to (100, 35), rises to (110, 38), dips to (120, 35), rises to (130, 38), dips to (140, 35), rises to (150, 38), dips to (160, 35), rises to (170, 38), and ends at (180, 35). Series C starts at (0, 30), peaks at (10, 33), dips to (20, 30), rises to (30, 33), dips to (40, 30), rises to (50, 33), dips to (60, 30), rises to (70, 33), dips to (80, 30), rises to (90, 33), dips to (100, 30), rises to (110, 33), dips to (120, 30), rises to (130, 33), dips to (140, 30), rises to (150, 33), dips to (160, 30), rises to (170, 33), and ends at (180, 30). Series D starts at (0, 25), peaks at (10, 28), dips to (20, 25), rises to (30, 28), dips to (40, 25), rises to (50, 28), dips to (60, 25), rises to (70, 28), dips to (80, 25), rises to (90, 28), dips to (100, 25), rises to (110, 28), dips to (120, 25), rises to (130, 28), dips to (140, 25), rises to (150, 28), dips to (160, 25), rises to (170, 28), and ends at (180, 25). Series E starts at (0, 20), peaks at (10, 23), dips to (20, 20), rises to (30, 23), dips to (40, 20), rises to (50, 23), dips to (60, 20), rises to (70, 23), dips to (80, 20), rises to (90, 23), dips to (100, 20), rises to (110, 23), dips to (120, 20), rises to (130, 23), dips to (140, 20), rises to (150, 23), dips to (160, 20), rises to (170, 23), and ends at (180, 20). Series F starts at (0, 15), peaks at (10, 18), dips to (20, 15), rises to (30, 18), dips to (40, 15), rises to (50, 18), dips to (60, 15), rises to (70, 18), dips to (80, 15), rises to (90, 18), dips to (100, 15), rises to (110, 18), dips to (120, 15), rises to (130, 18), dips to (140, 15), rises to (150, 18), dips to (160, 15), rises to (170, 18), and ends at (180, 15).

DISTANCE FROM SOURCE (METERS)

FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (DB)
 500 Hz OCTAVE BAND

TEST	76-033-L-01
NOISE SOURCE/SUBJECT	OPERATION:
A-7 AIRCRAFT IN THE	(70% RPM
AF32A-24 SUPPRESSOR	(SINGLE ENGINE
ENGINE TF41-A-1	(GROUND RUNUP (SUPPRESSED)
END TEST	) METEOROLOGY:
	) TEMP = 15 C
	) BAR PRESS = .760 M HG
	) REL HUMID = 70 %
	RUN 02
	20 NOV 79
	PLACE 22

SECTION ONE - MARKETING

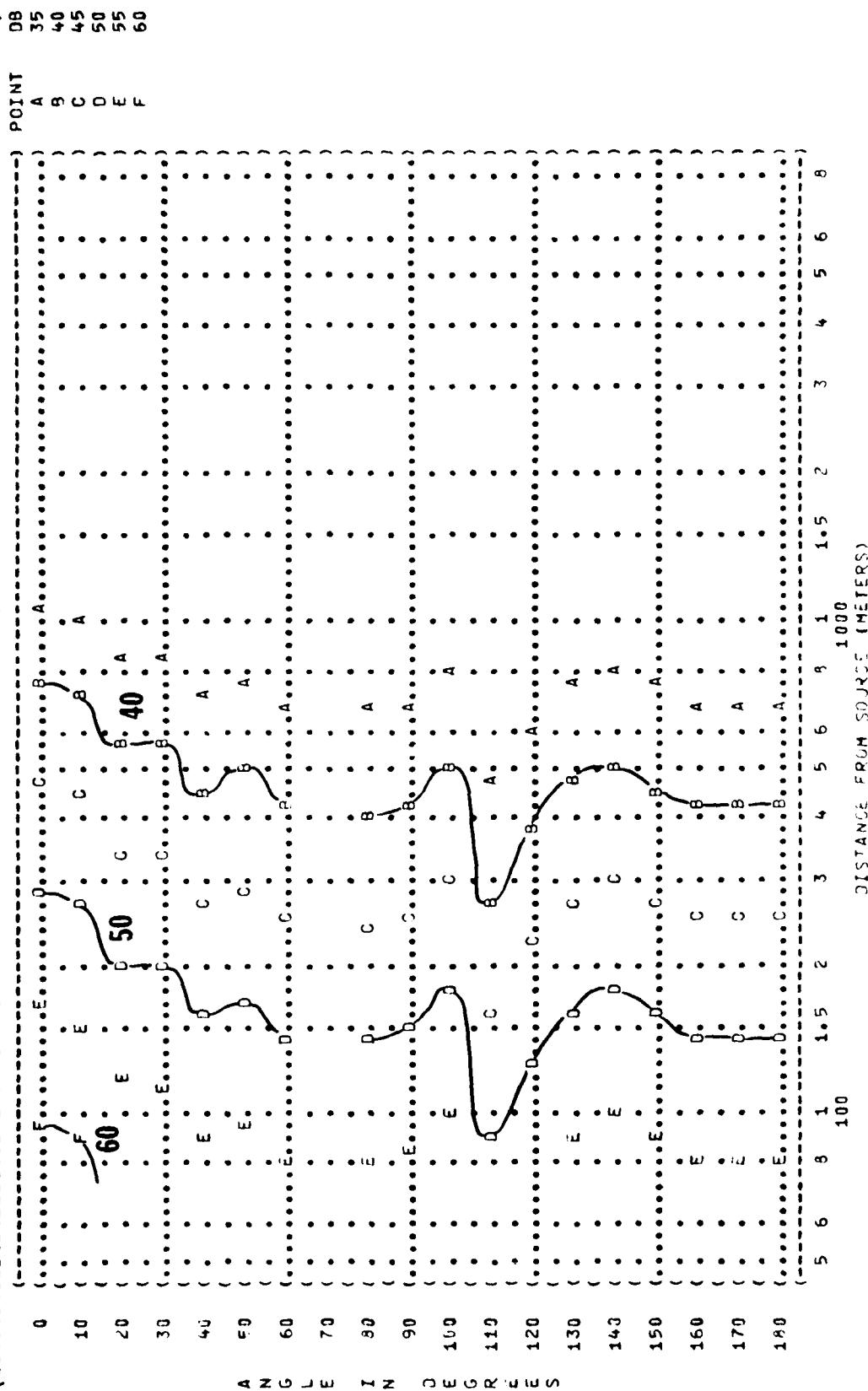


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: A-7 AIRCRAFT IN THE
AF 32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

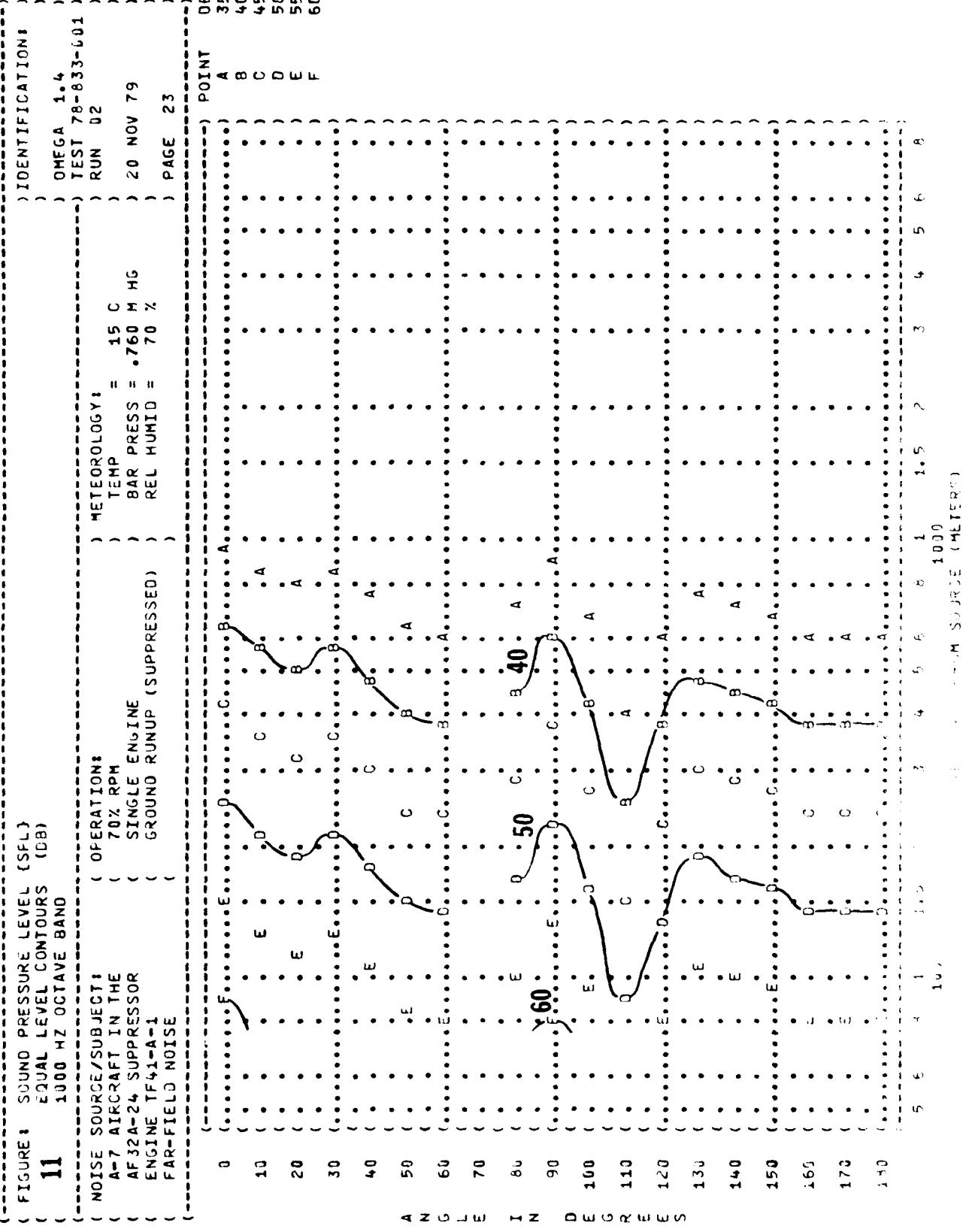


FIGURE 11 SOUND PRESSURE LEVEL (CSFL)
EQUAL LEVEL CONTOURS (DB)
2000 Hz OCTAVE BAND

SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATIONS:
70% RPM
SINGLE ENGINE
GROUND KJNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .766 H HG
REL HUMID = 70 %

TEST 78-835-(U1)
RUN 02
20 NOV 79
PAGE 24

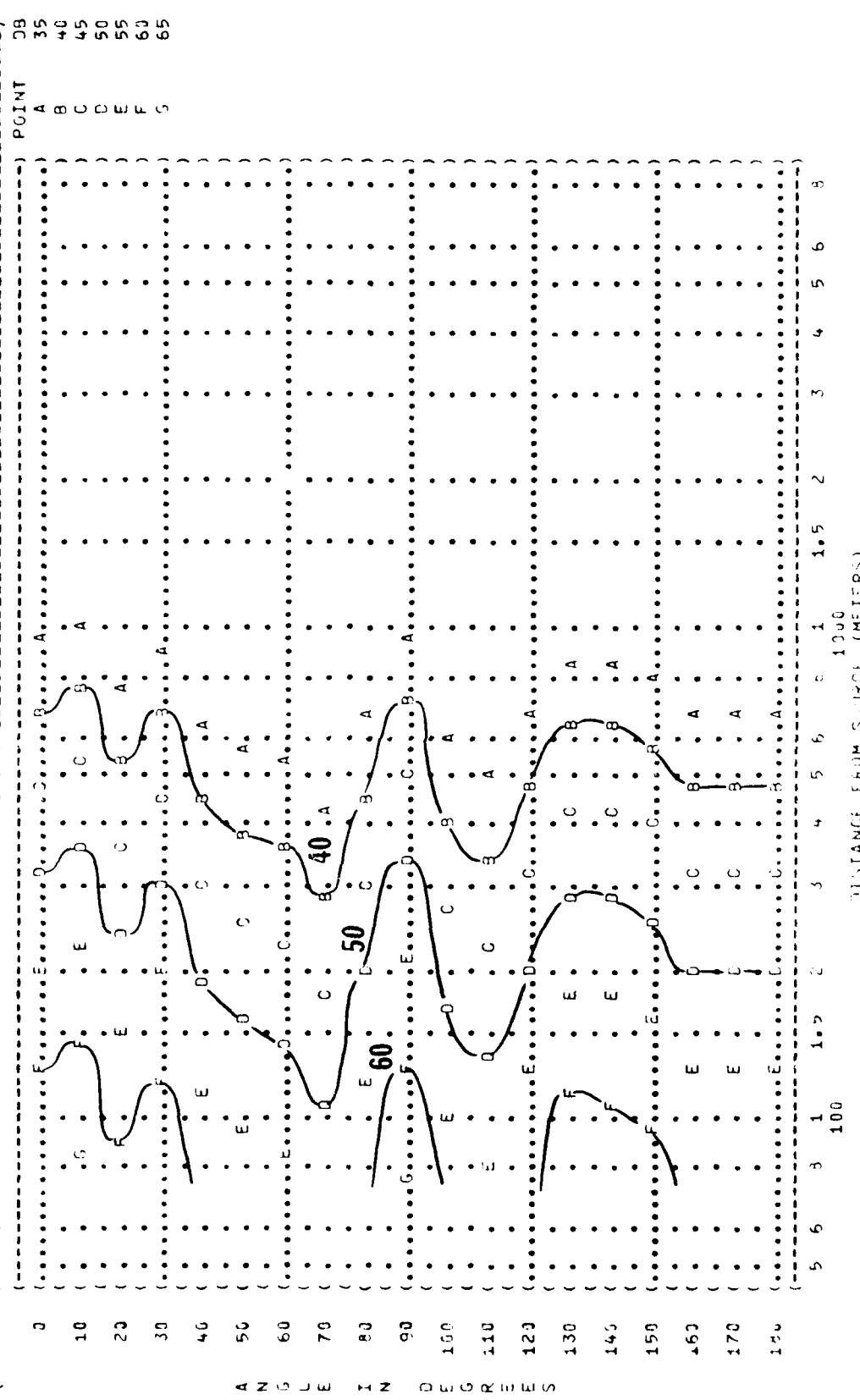


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (Da)
11
 4000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF 32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 70% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 MM Hg
 REL HUMID = 70 %

IDENTIFICATION:
 OMEGA 1.4
 TEST 78-633-091
 RUN 02
 20 NOV 79
 PAGE 25

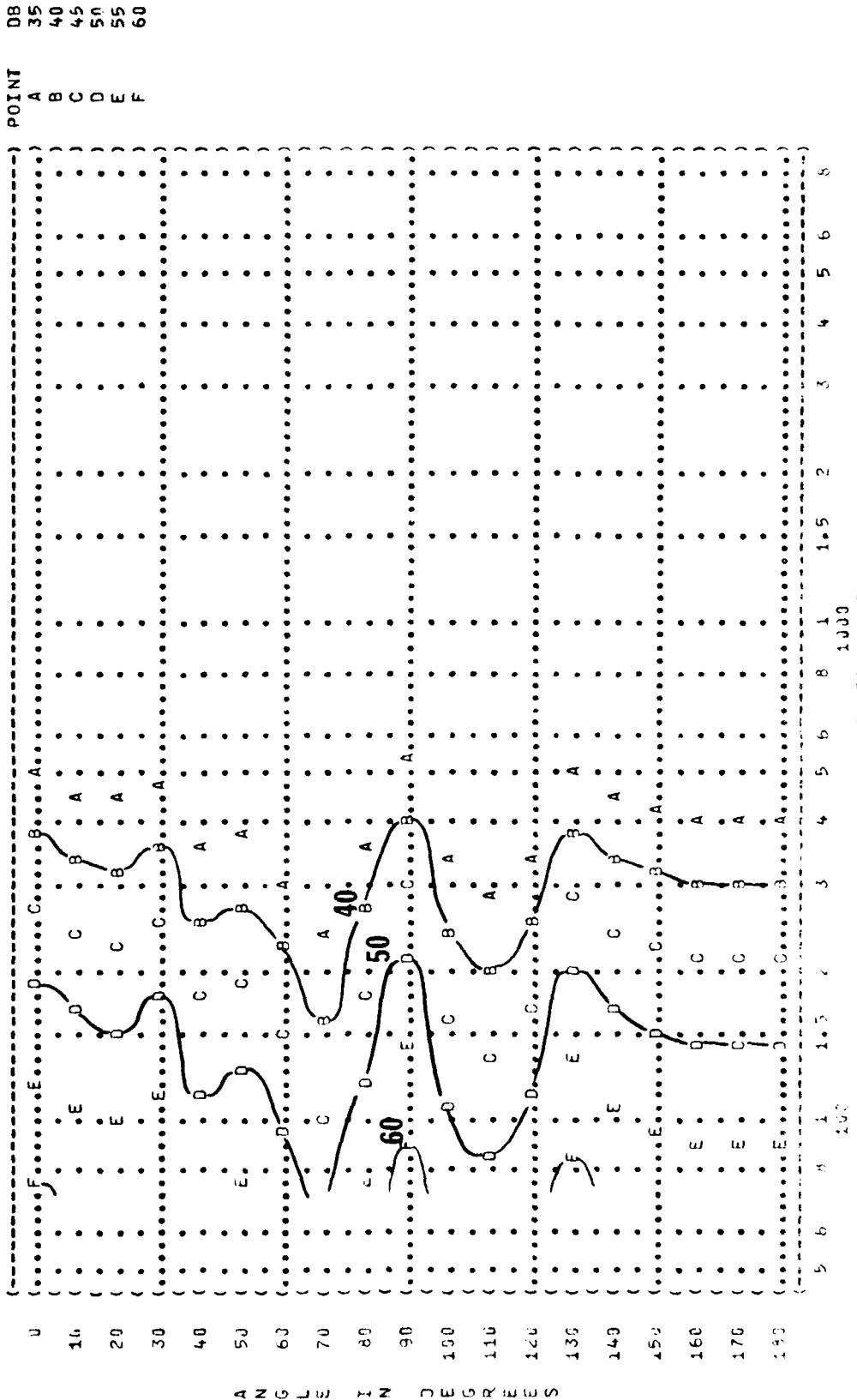


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:	(OPERA A-7 AIRCRAFT IN THE AF 32A-24 SUPPRESSOR ENGINE TF41-A-1 FAR-FIELD NOISE)
A-7 AIRCRAFT IN THE AF 32A-24 SUPPRESSOR ENGINE TF41-A-1 FAR-FIELD NOISE	(OPERA 70% SIN GRG)

FIGURE: SOUND PRESSURE LEVEL [SPL]
11
 EQUAL LEVEL CONTOURS
 8000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 70% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 Hg
 REL HUMID = 70 %

IDENTIFICATION:
 OMEGA 1.4
 TEST 78-833-001
 RUN 02
 20 NOV 79
 PAGE 26

DISTANCE FROM SOURCE (METERS)

FIGURE 11 SOUND PRESSURE LEVEL EQUAL LEVEL CONTOURS (DB) 31.5 Hz OCTAVE BAND

FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (dB)
 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7D AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 Hg
 REL HUMID = 70 %

IDENTIFICATION:
 OMEGA 1.4
 TEST 77-833-001
 RUN 03
 20 NOV 79
 PAGE 18

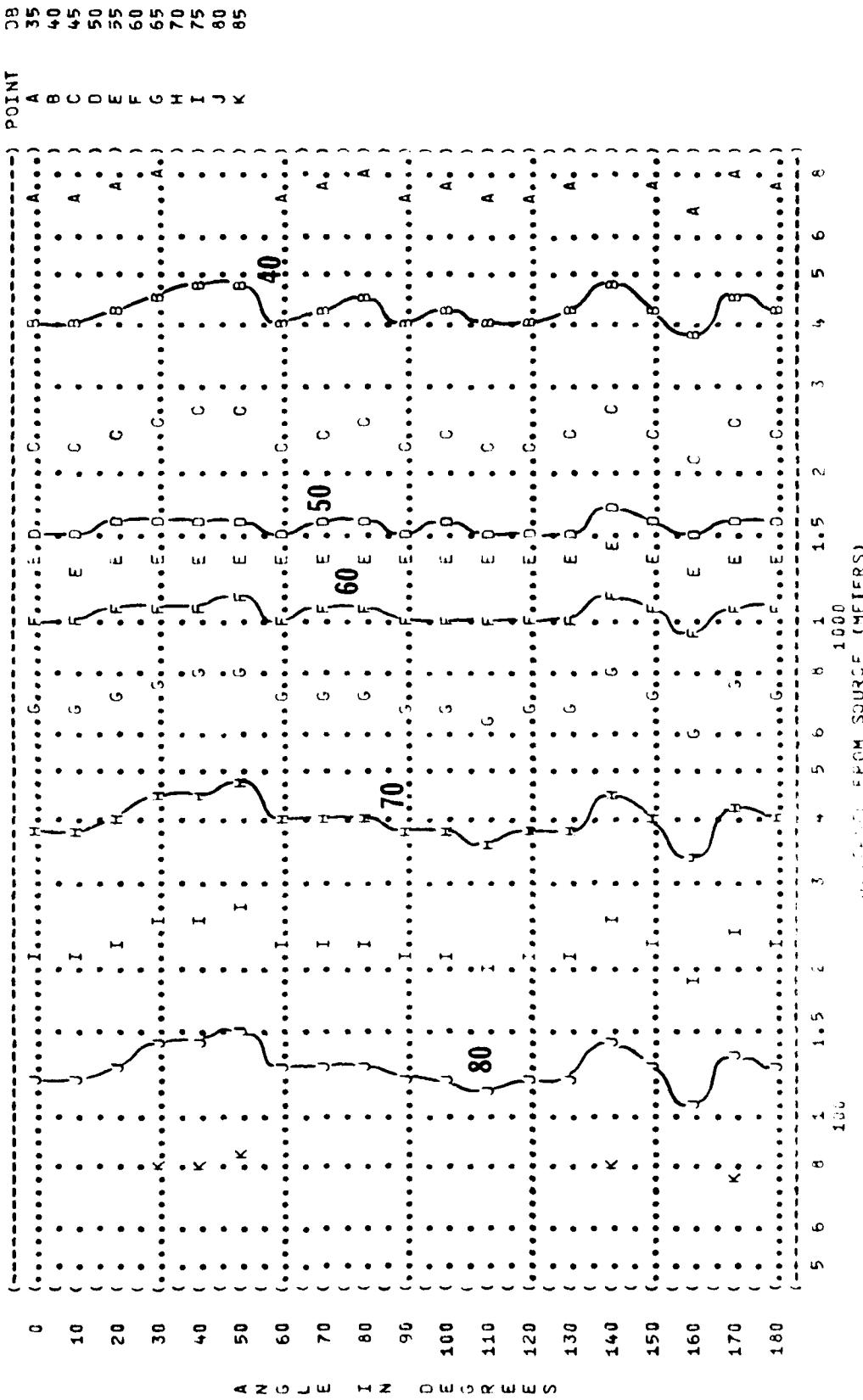


FIGURE : SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (CB)
11
 63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-70 AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M Hg
 REL HUMID = 70 %

PAGE 19

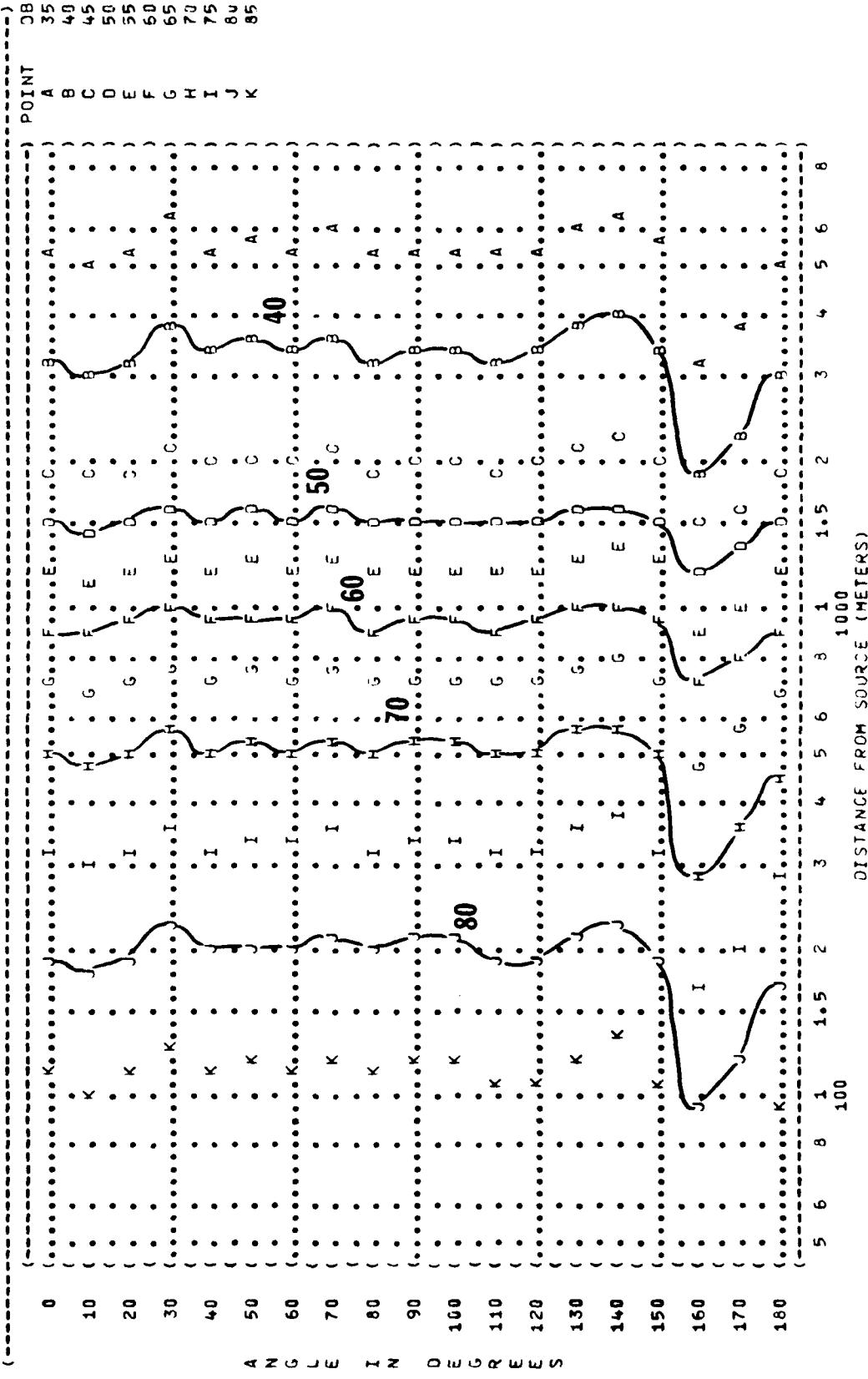


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (CB)
11
 125 Hz OCTAVE BAND
 NOISE SOURCE/SUBJECT:
 A-7J AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP
 PAGE 20

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 Hg
 REL HUMID = 70 %
 TEST 77-833-001
 RUN 03
 20 NOV 79

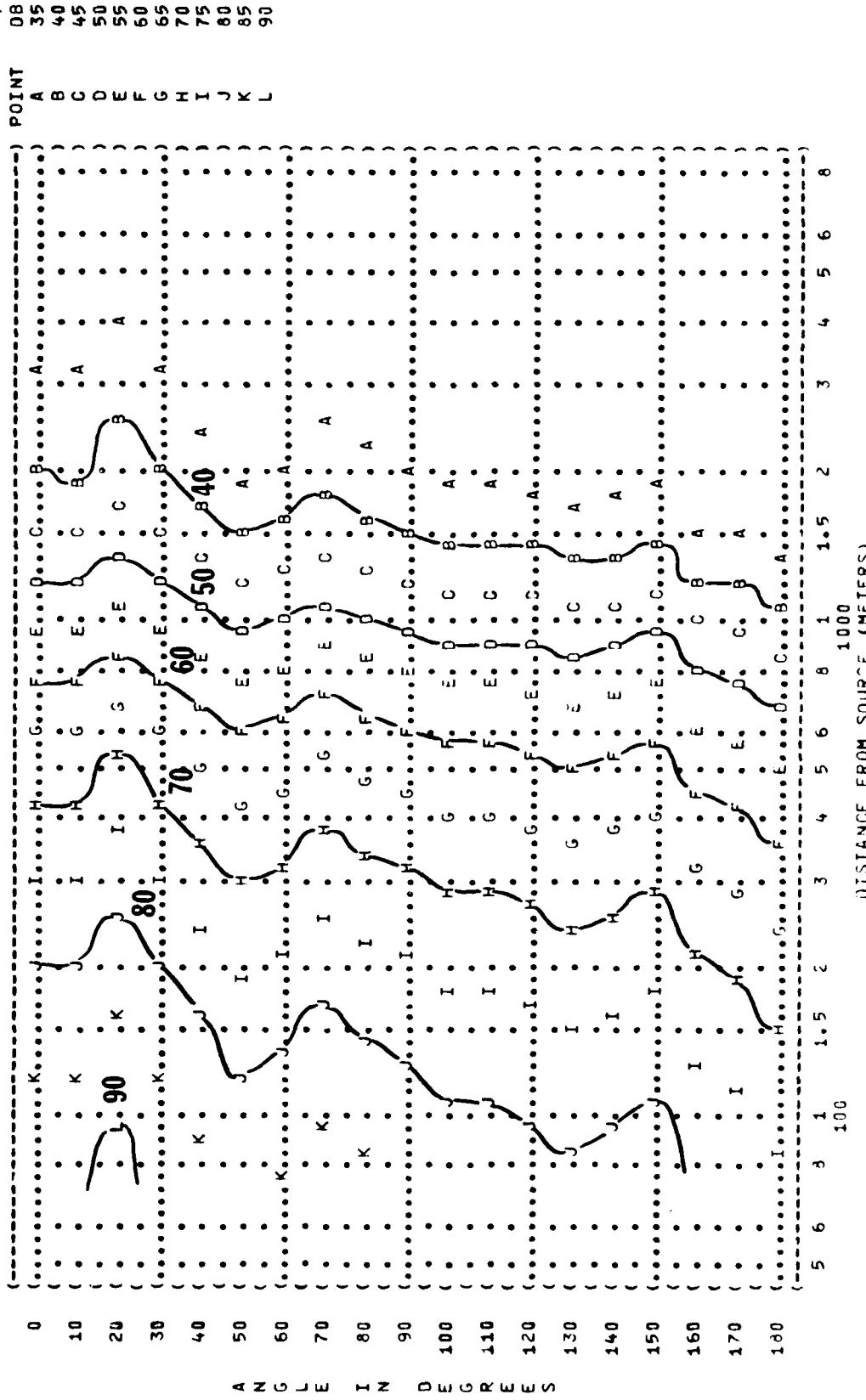


FIGURE: SOUND PRESSURE LEVEL (SPL)
11
EQUAL LEVEL CONTOURS (CB)
250 Hz OCTAVE BAND

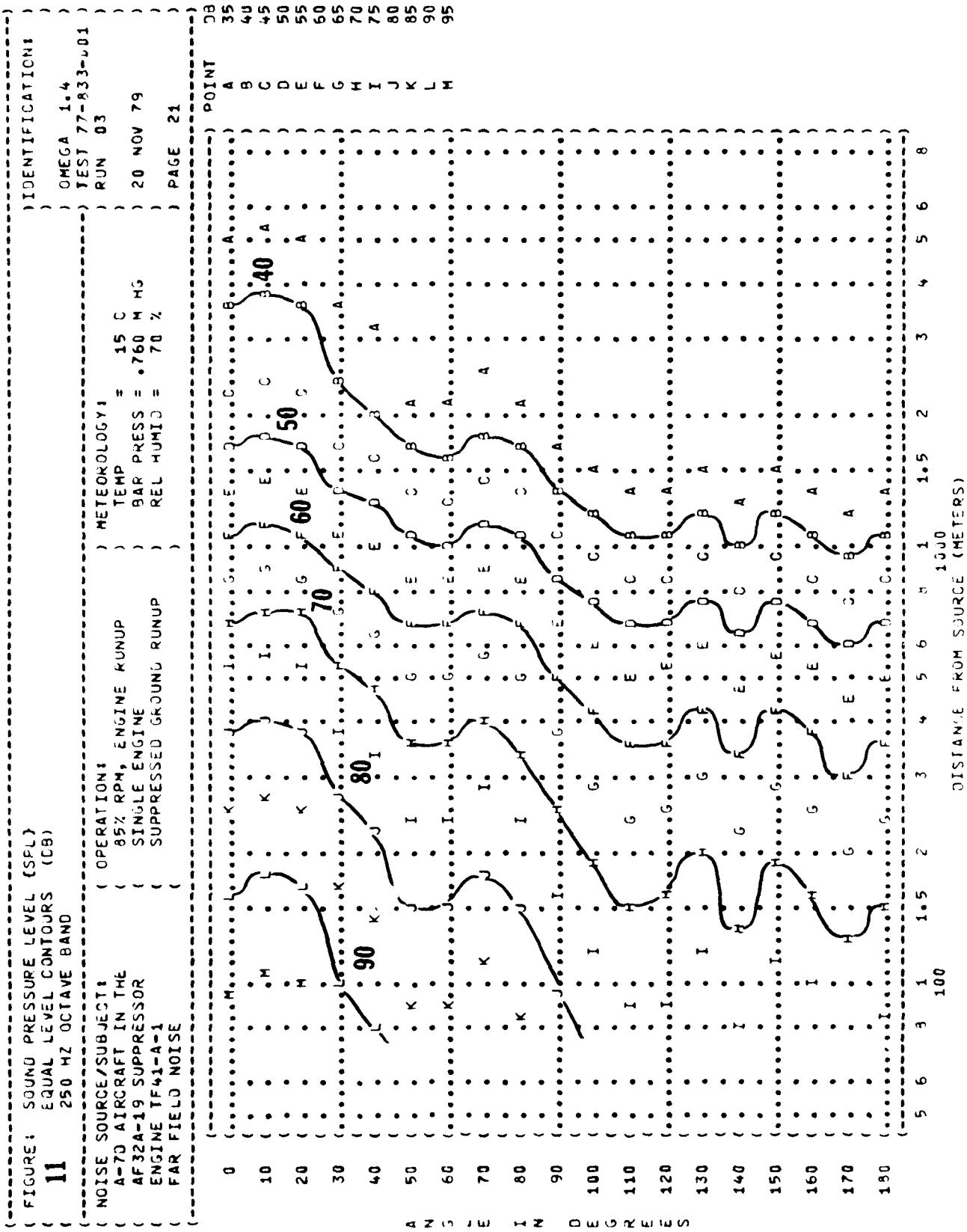


FIGURE 11
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (CB)
500 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-70 AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
85% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST 77-8333-001
RUN 03
20 NOV 79
PAGE 22

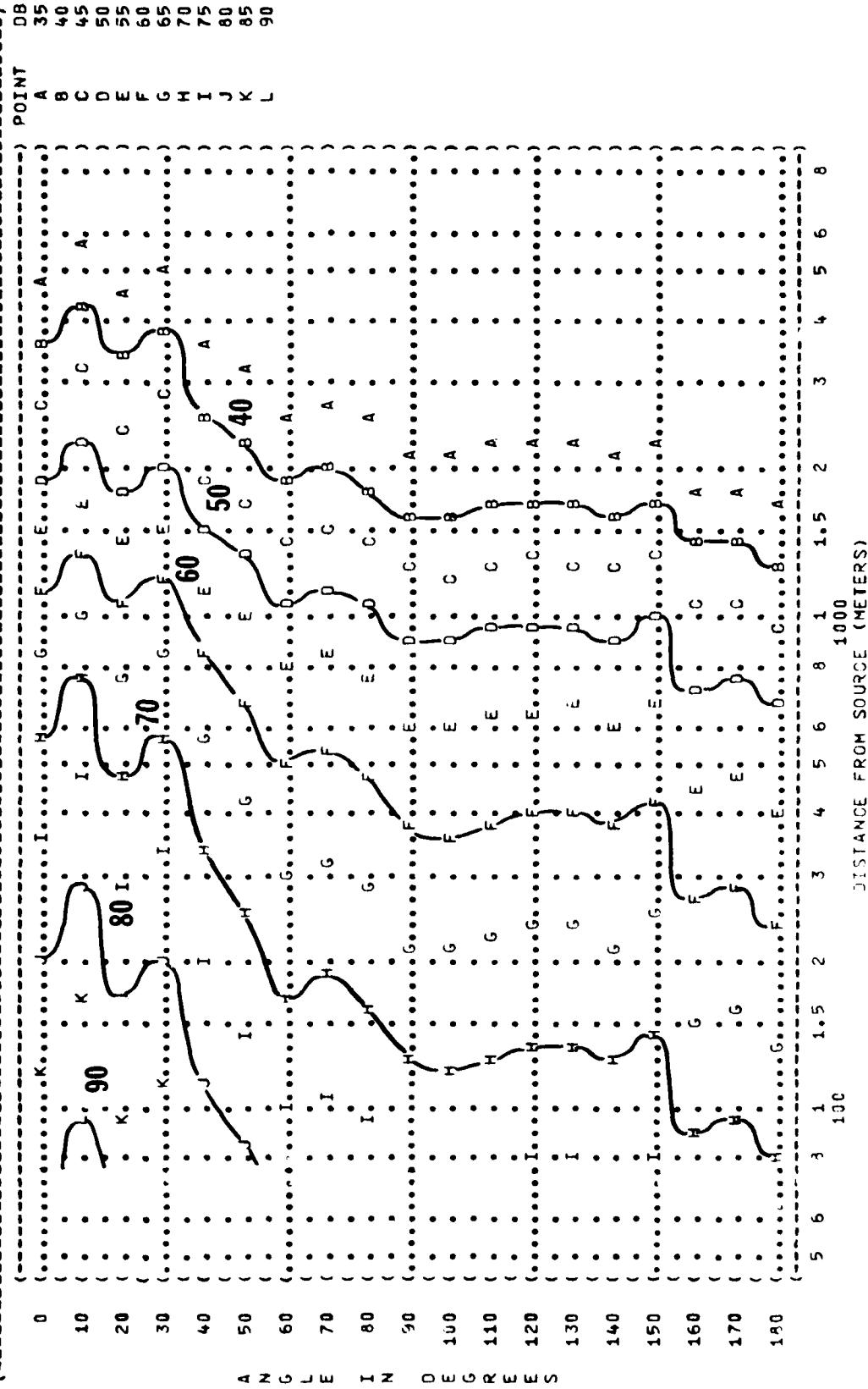


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (CB)
 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7D AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = 760 H HG
 REL HUMID = 70 %

TEST 77-833-001
 RUN 03
 PAGE 23

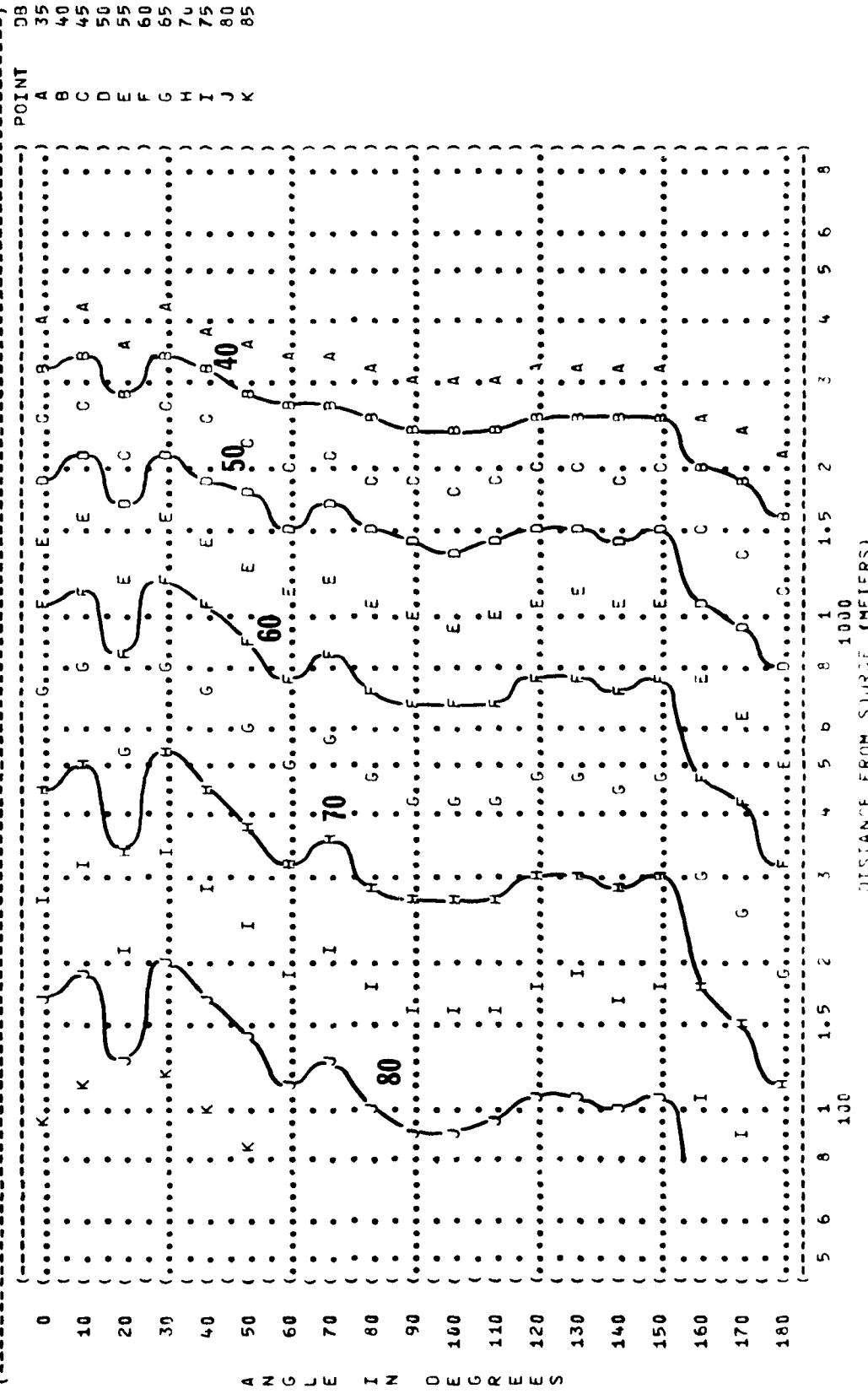
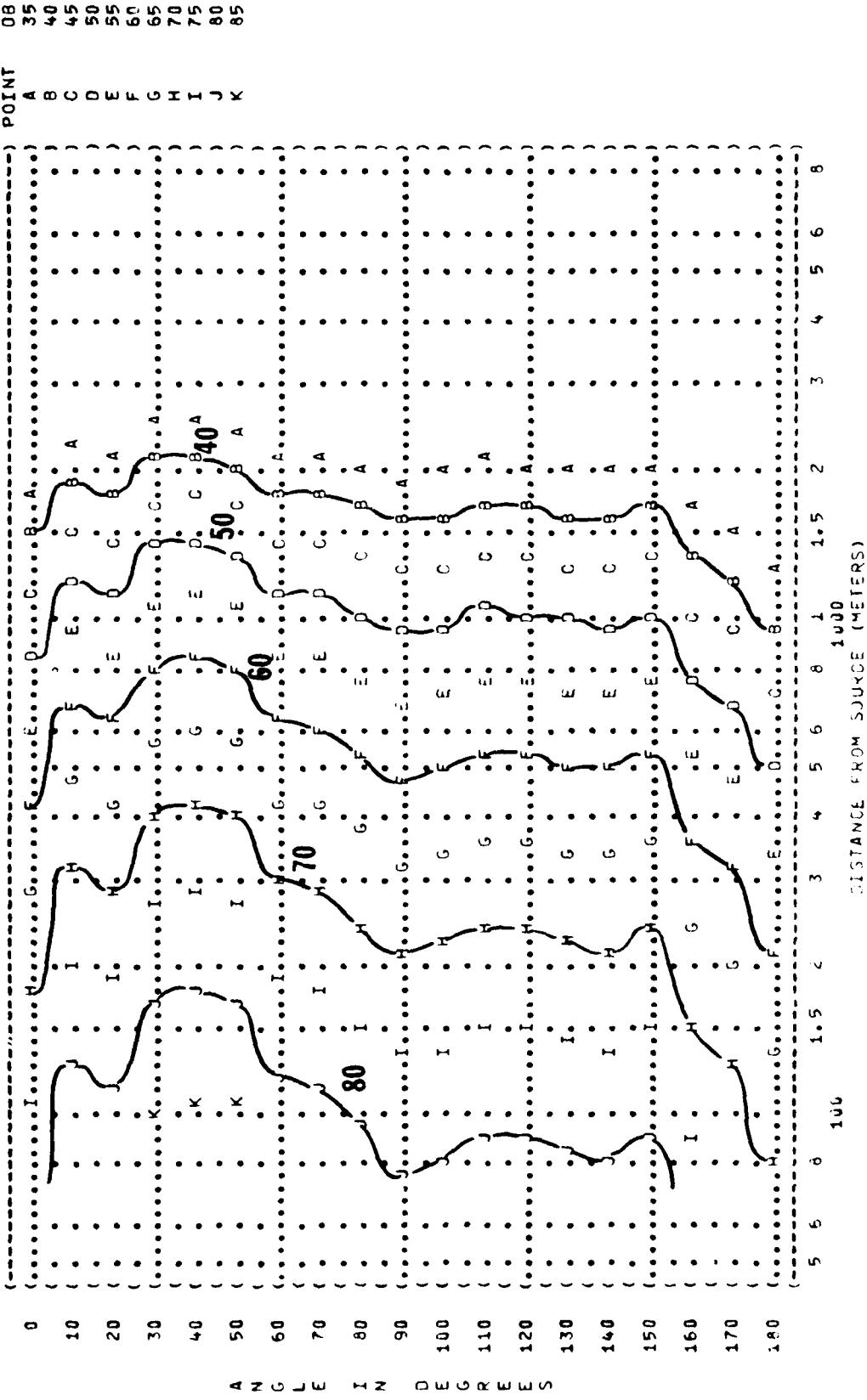


FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-70 AIRCRAFT IN THE
AF12A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
85% RPM, ENGINE RUNUP
SINGLE ENGINE
SUPPRESSED GROUND RUNUP



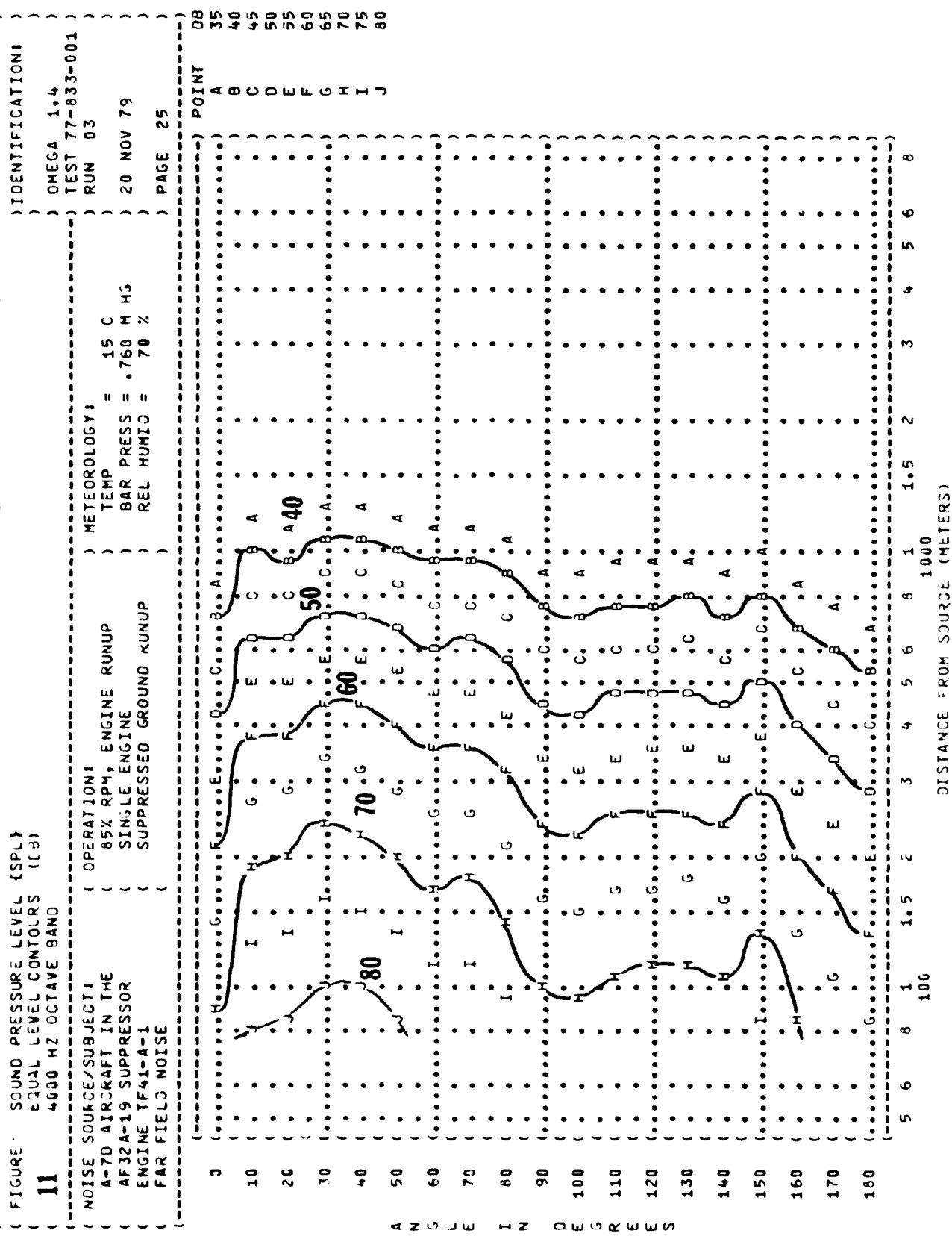


FIGURE : SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 11 8000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-70 AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 85% RPM, ENGINE RUNUP
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 77-833-001
 RUN 03
 OMEGA 1.4
 20 NOV 79
 PAGE 26

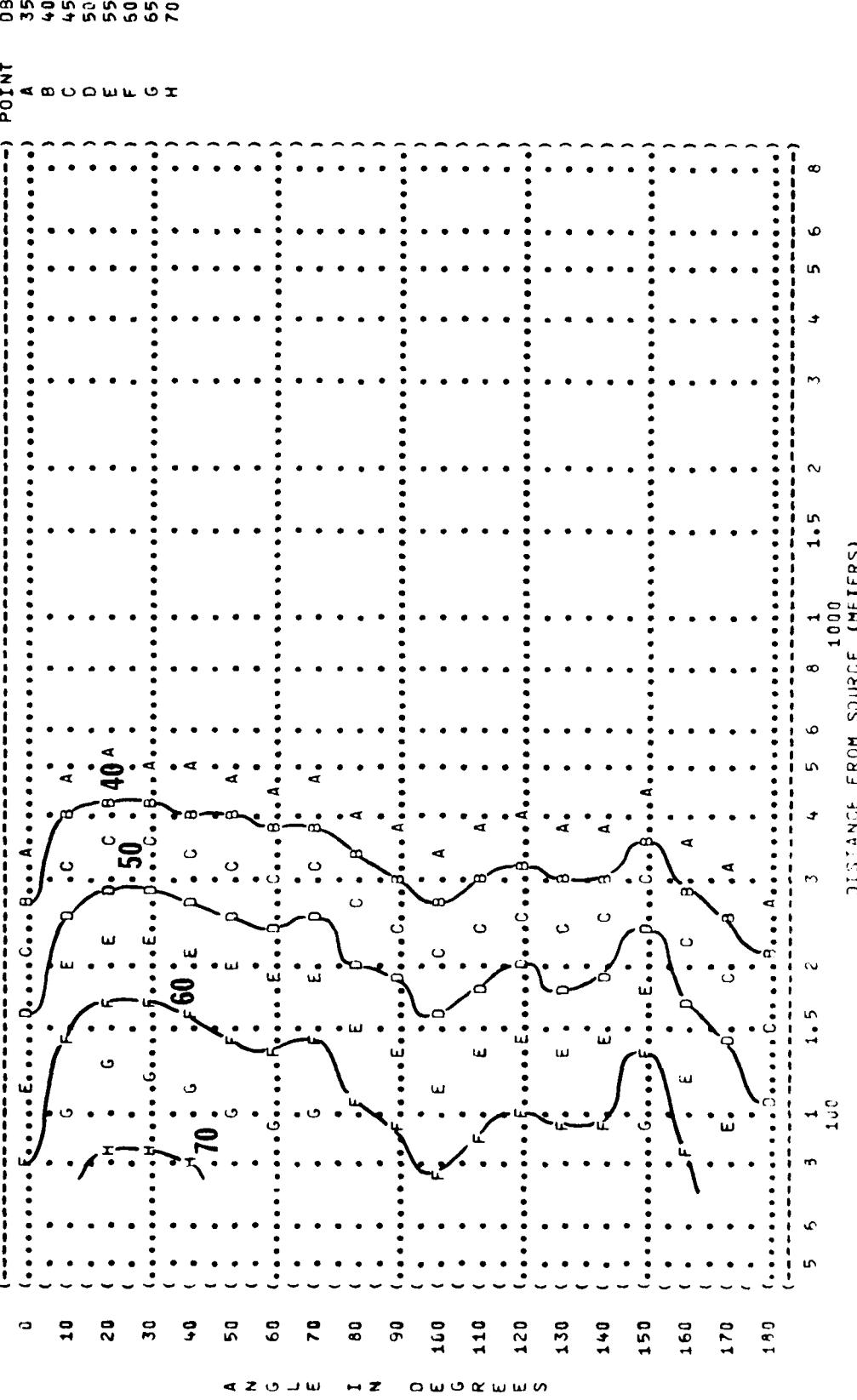


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
LEVEL CONTOURS (dB)
11 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATIONS:
85.6% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-833-001
RUN 03
20 NOV 79
PAGE 18

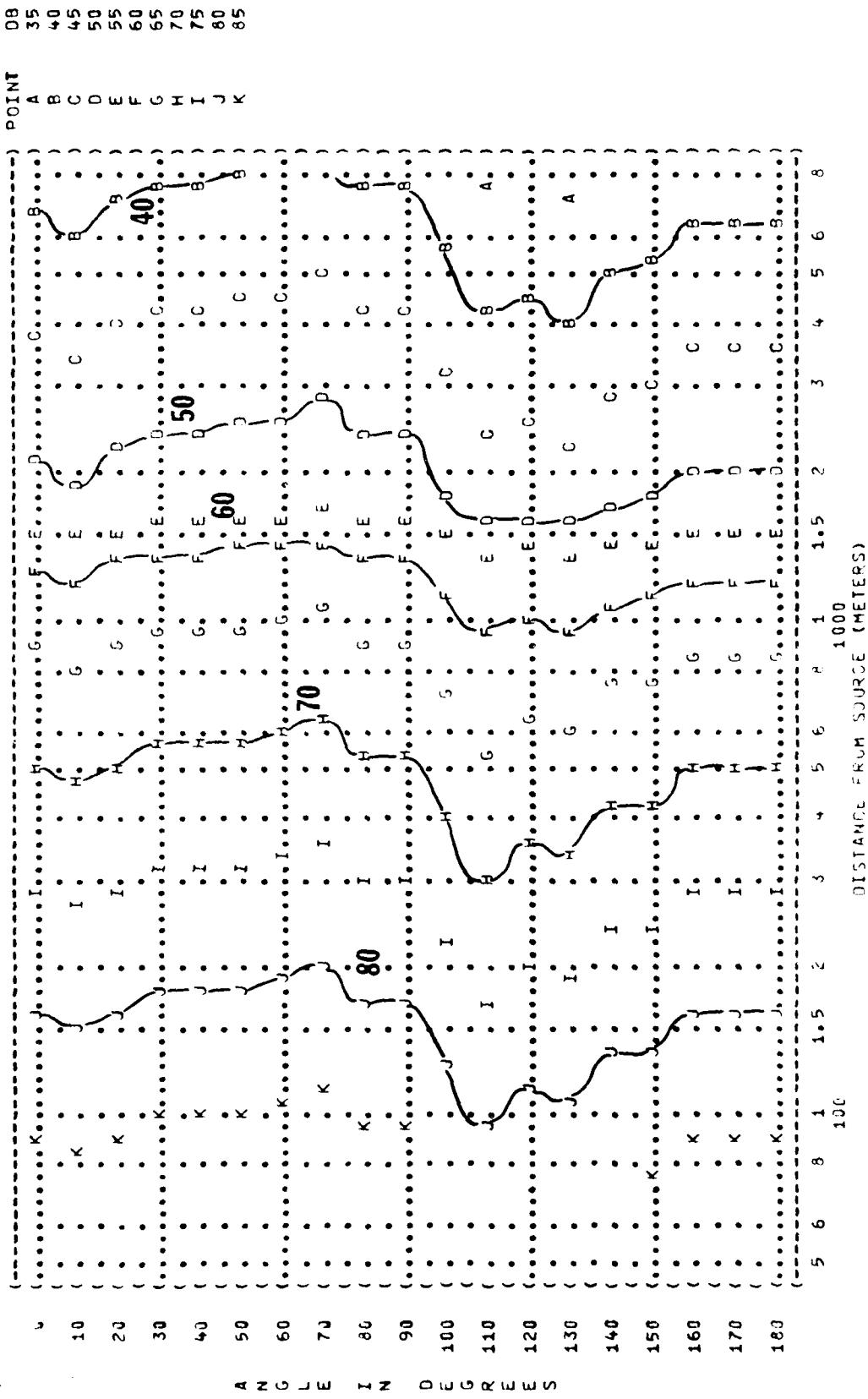


FIGURE: 11) JUNO PRESSURE LEVEL (CPL)
 11 EQUAL LEVEL CONTOURS (CA)
 63 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 85.6% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 TEST 76-833-001
 RUN 03
 PAGE 19

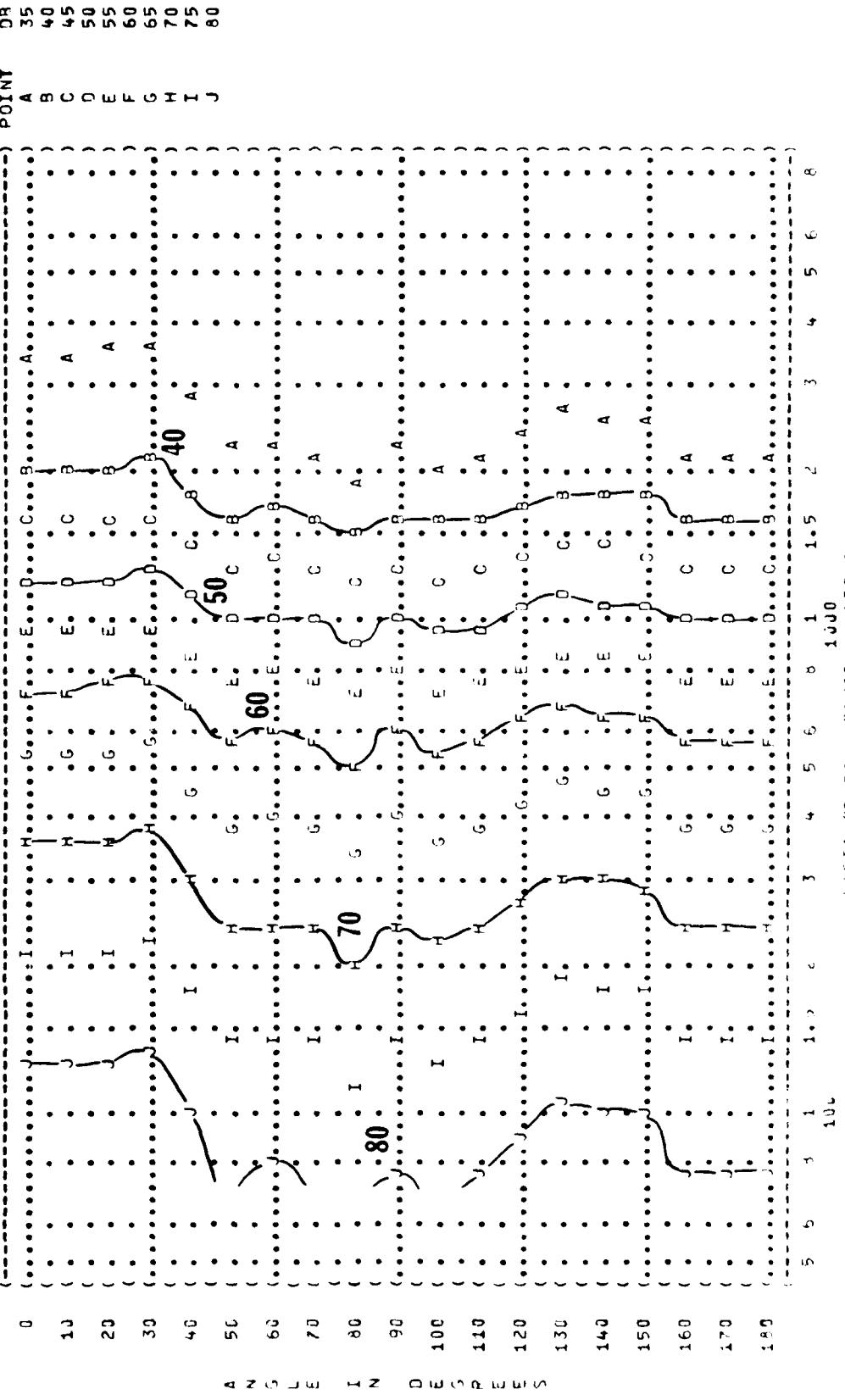


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (dB)
 11 125 Hz OCTAVE BAND
 NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

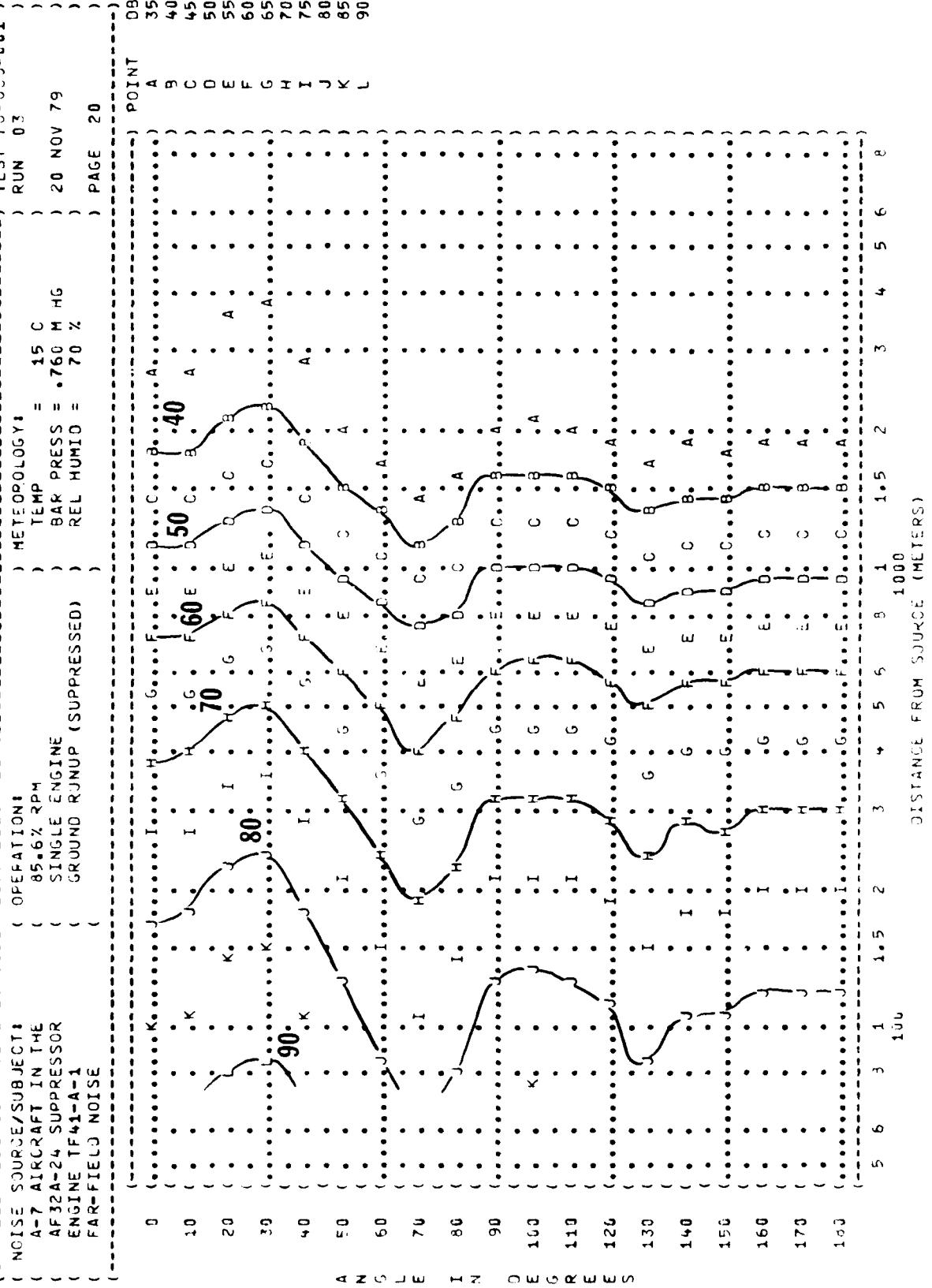


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL OCTAVE BAND
250 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
(FAR-FIELD) NOISE

OPERATION:
85.6% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

IDENTIFICATION:

OMEGA 1.4

TEST 78-833-001

RUN 03

TEMP = 15 C

BAR PRESS = 760 Hg

REL HUMID = 70 %

20 NOV 79

PAGE 21

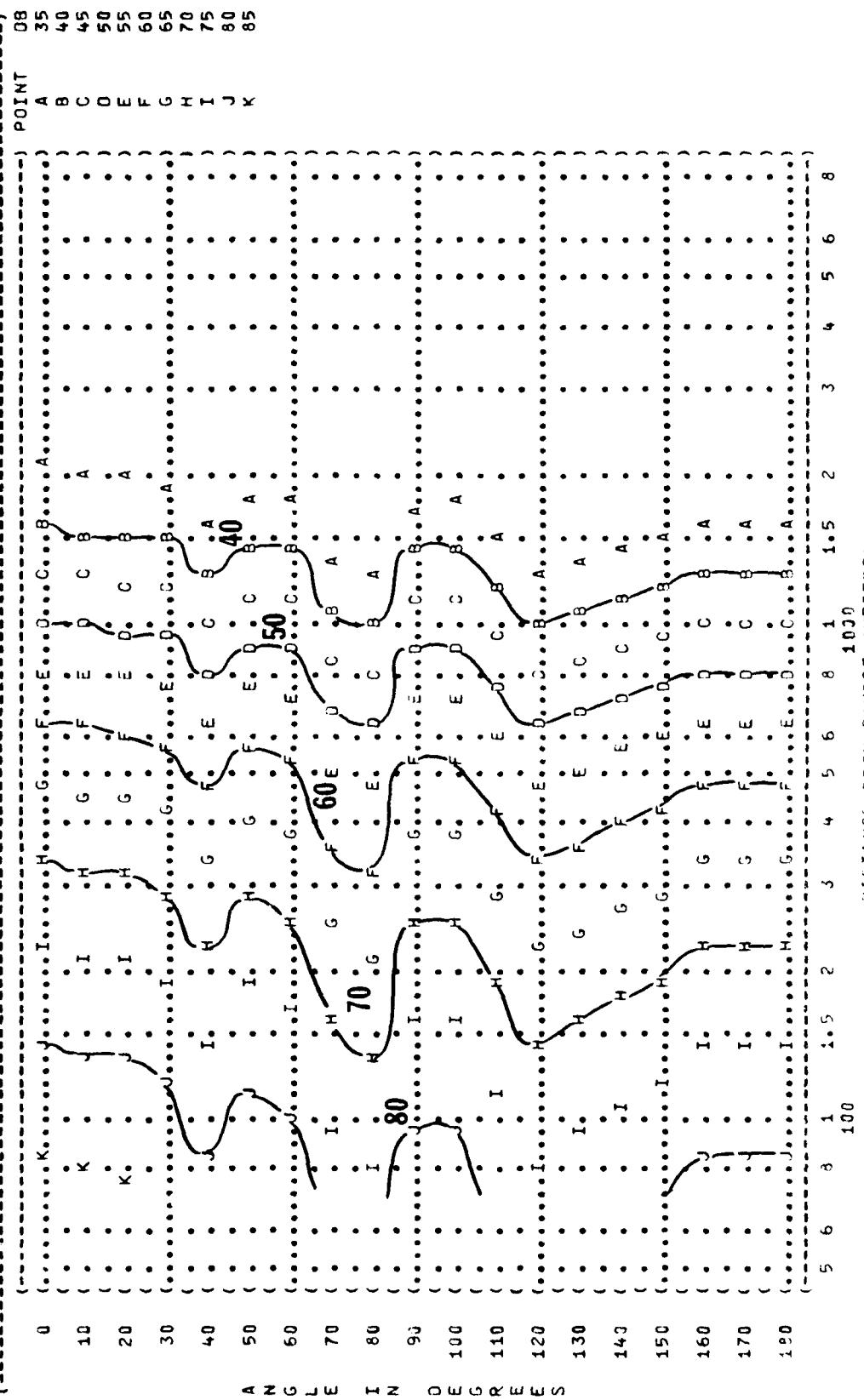


FIGURE 11
 SUBJECT: SINGULAR PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (ECA)
 500 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 55.6% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

GROUND RUNUP (SUPPRESSED)

) IDENTIFICATION:
) OMEGA 1.4
) RUN 03
) TEST 78-833-C01

) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = 760 MM HG
) REL HUMID = 70 %
) PAGE 22

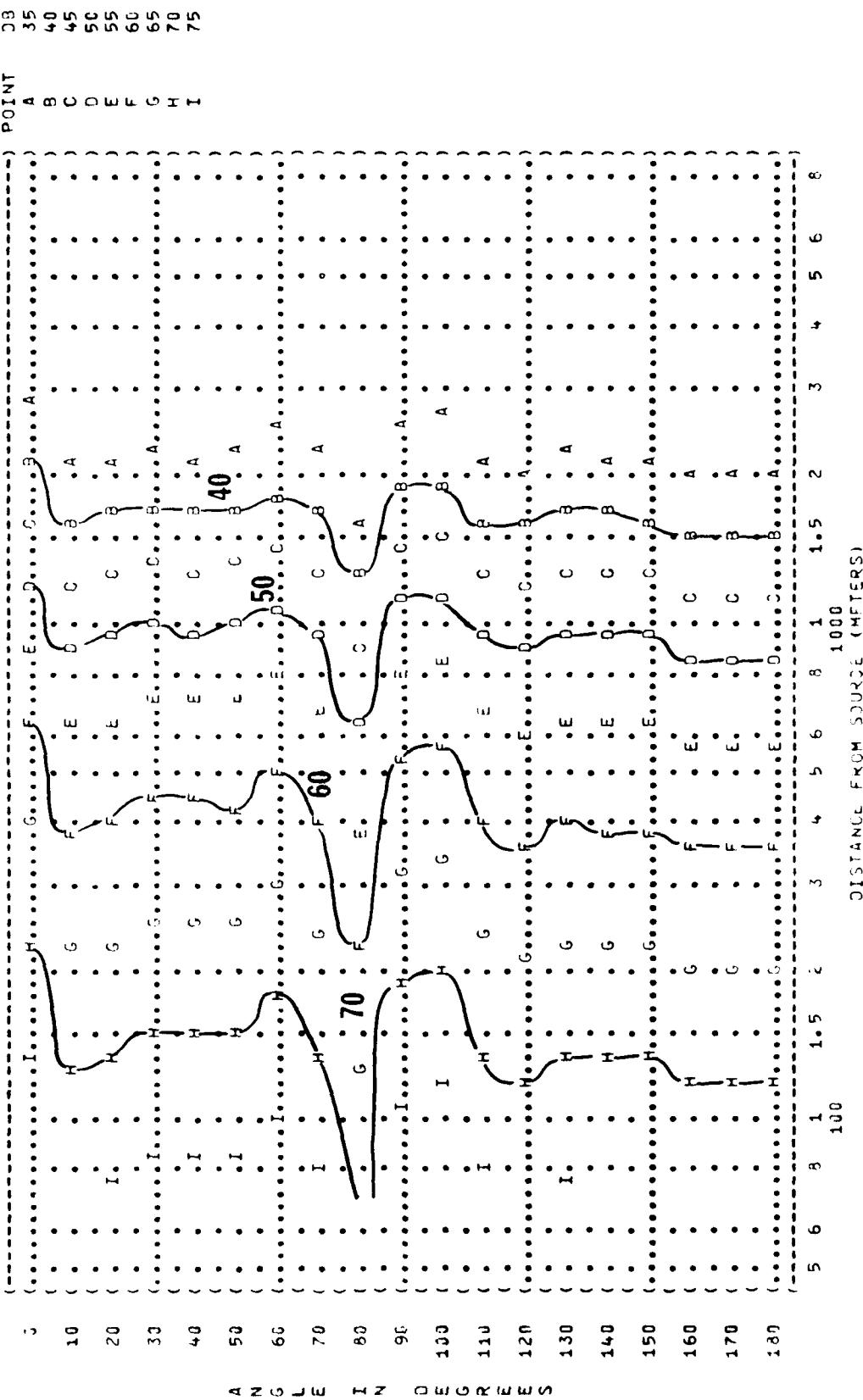


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS (dB)
 1000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION: 85.6% RPM
 SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 78-833-001
 RUN #3
 20 NOV 79
 PAGE 23

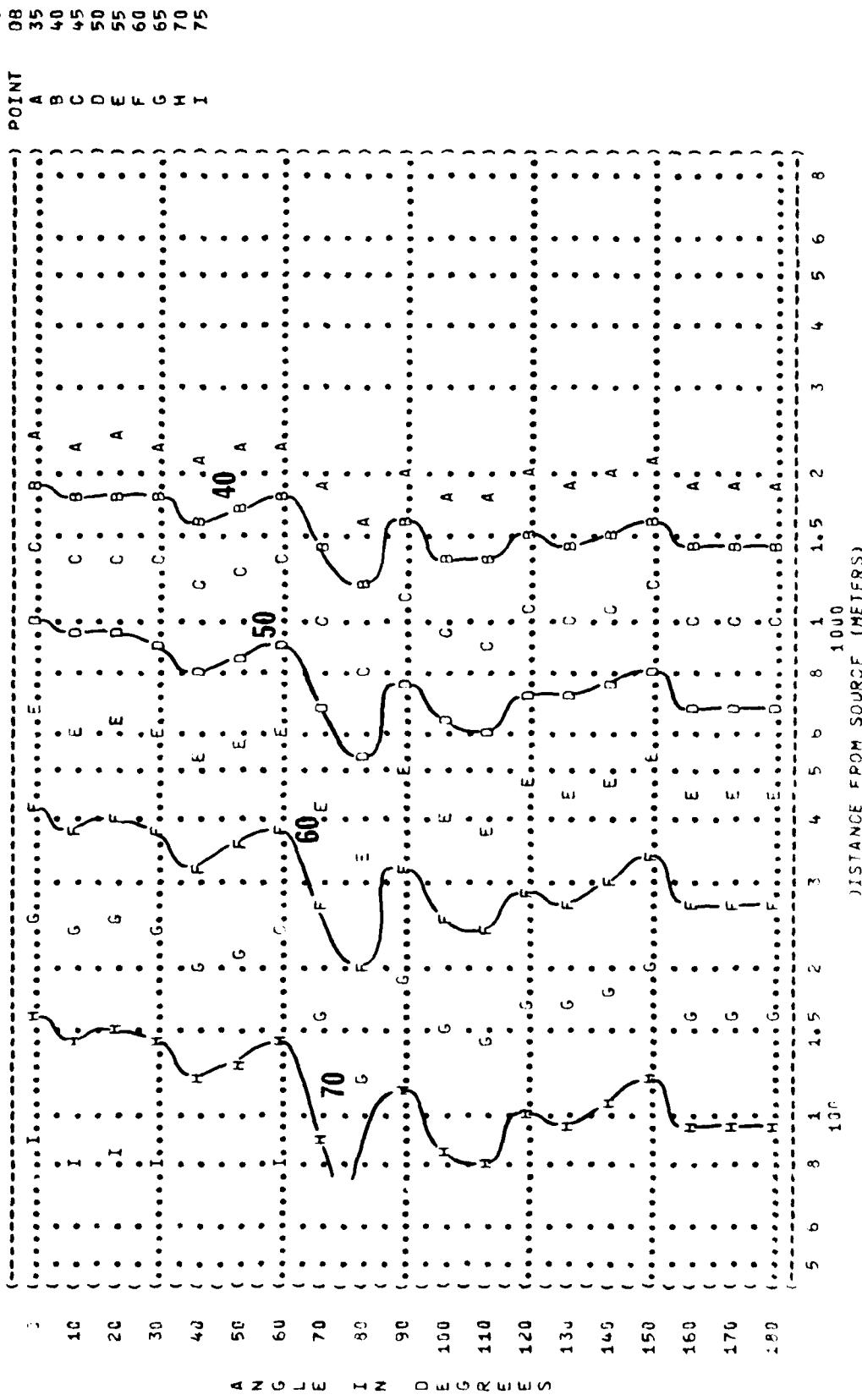


FIGURE: SOUND PRESSURE LEVEL (SPL)
11
 EQUAL LEVEL CONTOURS (CB)
 2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF 32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 85.6% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESS=0)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M Hg
 REL HUMID = 70 %

TEST 78-833-001
 RUN 03
 20 NOV 79
 PAGE 24

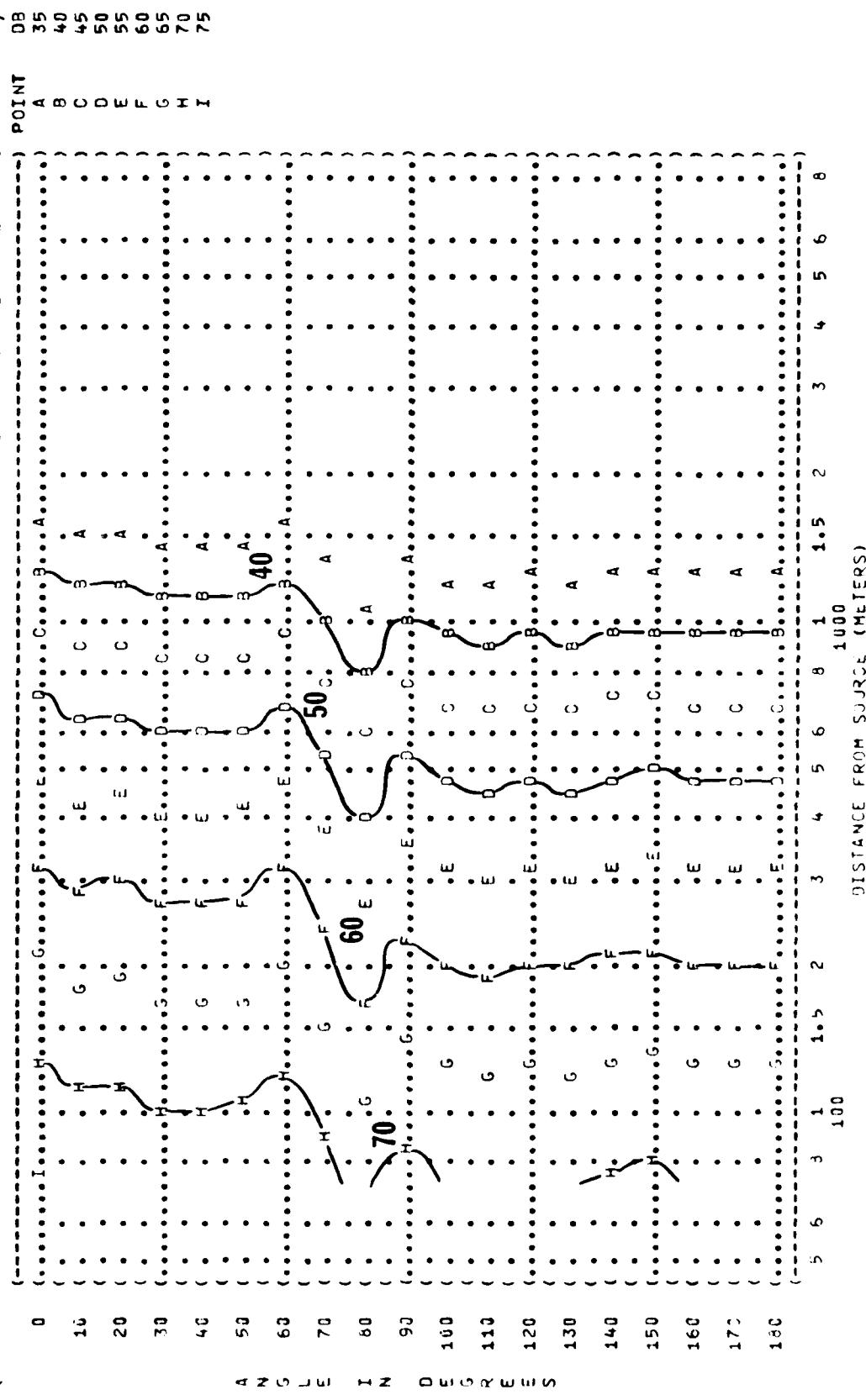
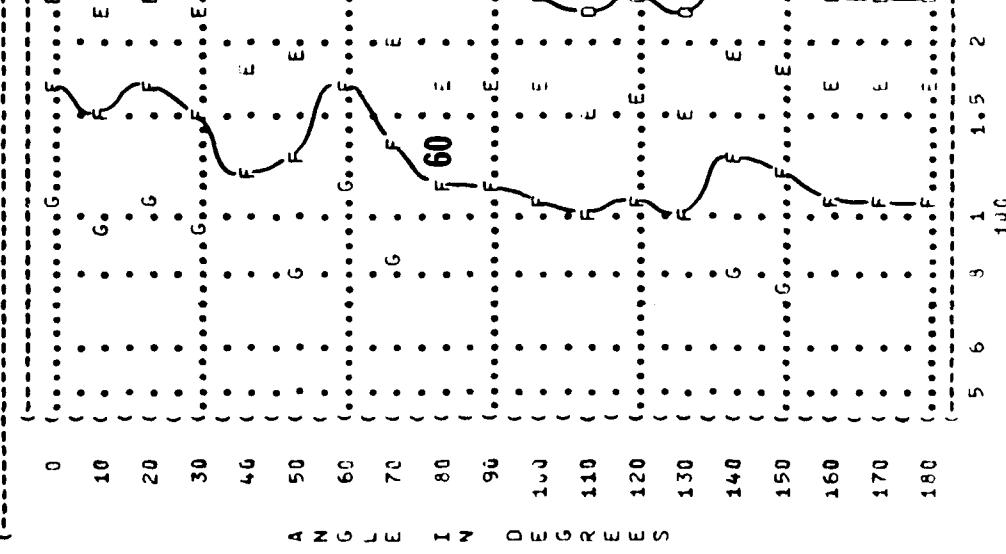


FIGURE 4 SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS
 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: OPERATION:
 A-7 AIRCRAFT IN THE 85.6% RPM
 AF 32A-24 SUPPRESSOR SINGLE ENGINE
 ENGINE TF41-A-1 GROUND RUNUP (SUPPRESSED)
 FAR-FIELD NOISE



IDENTIFICATION:
 OMEGA 1.4
 TEST 78-033-001
 RUN 03
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 PAGE 25

METEOROLOGY:
 GROUND RUNUP (SUPPRESSED)

POINT DB

Point	A	B	C	D	E	F	G
A	35						
B	40						
C	45						
D	50						
E	55						
F	60						
G	65						

FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11
 EQUAL LEVEL CONTOURS (ELB)
 2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATIONS:
 85.6% RPM
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSOR)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 78-833-001
 RUN C3
 OMEGA 1.4
 20 NOV 79
 PAGE 26

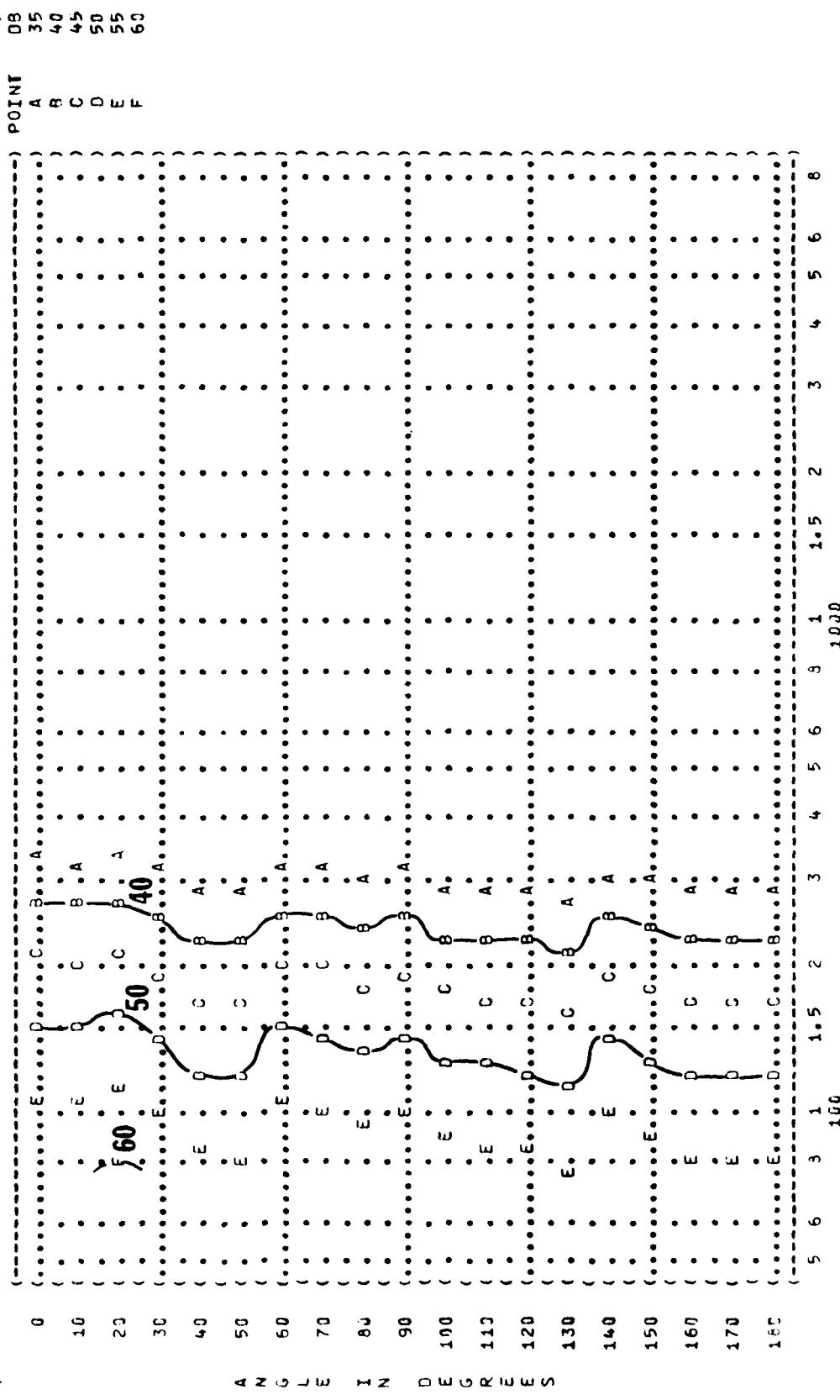


FIGURE 1 DYNAMIC PRESSURE LEVEL (SPL)
11 DUAL LEVEL CONTOURS (DB)
31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT
(A-7 AIRCRAFT IN THE
(AF 32A-19 SUPPRESSOR
(ENGINE TF-1-A-1
(FAR FIELD NOISE

OPERATION:
(MILITARY POWER, 96% RPM
(SINGLE ENGINE
(SUPPRESSED GROUND RUNUP

METEOROLOGY:
(TEMP = 15 C
(BAR PRESS = .760 Hg
(REL HUMID = 70 %

PAGE 18

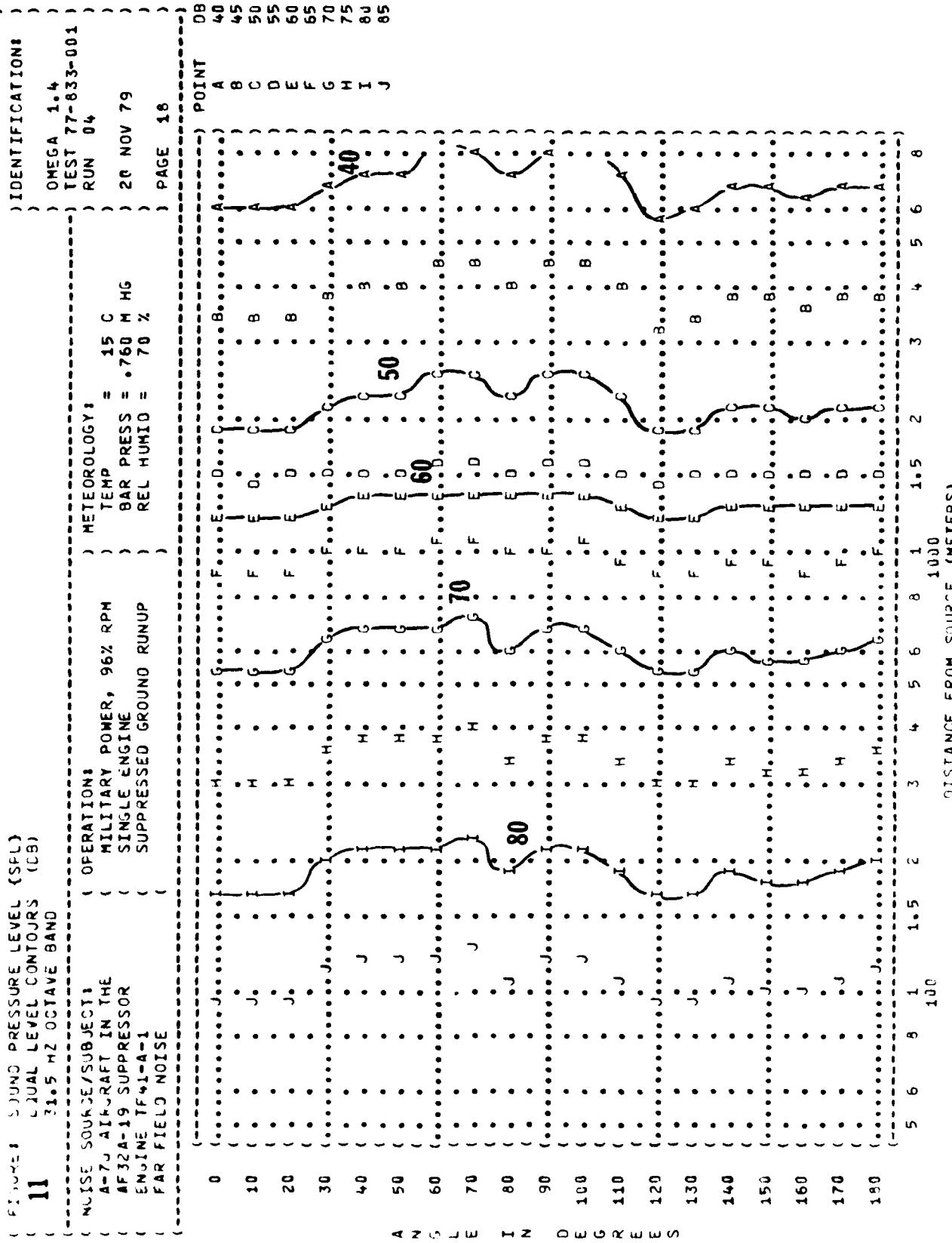


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (CB)
11 125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7J AIRCRAFT IN THE
AF 32A-15 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
MILITARY POWER, 96% RPM
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15 C
BAR PRESS = 760 M HG
REL HUMID = 70 %

PAGE 20

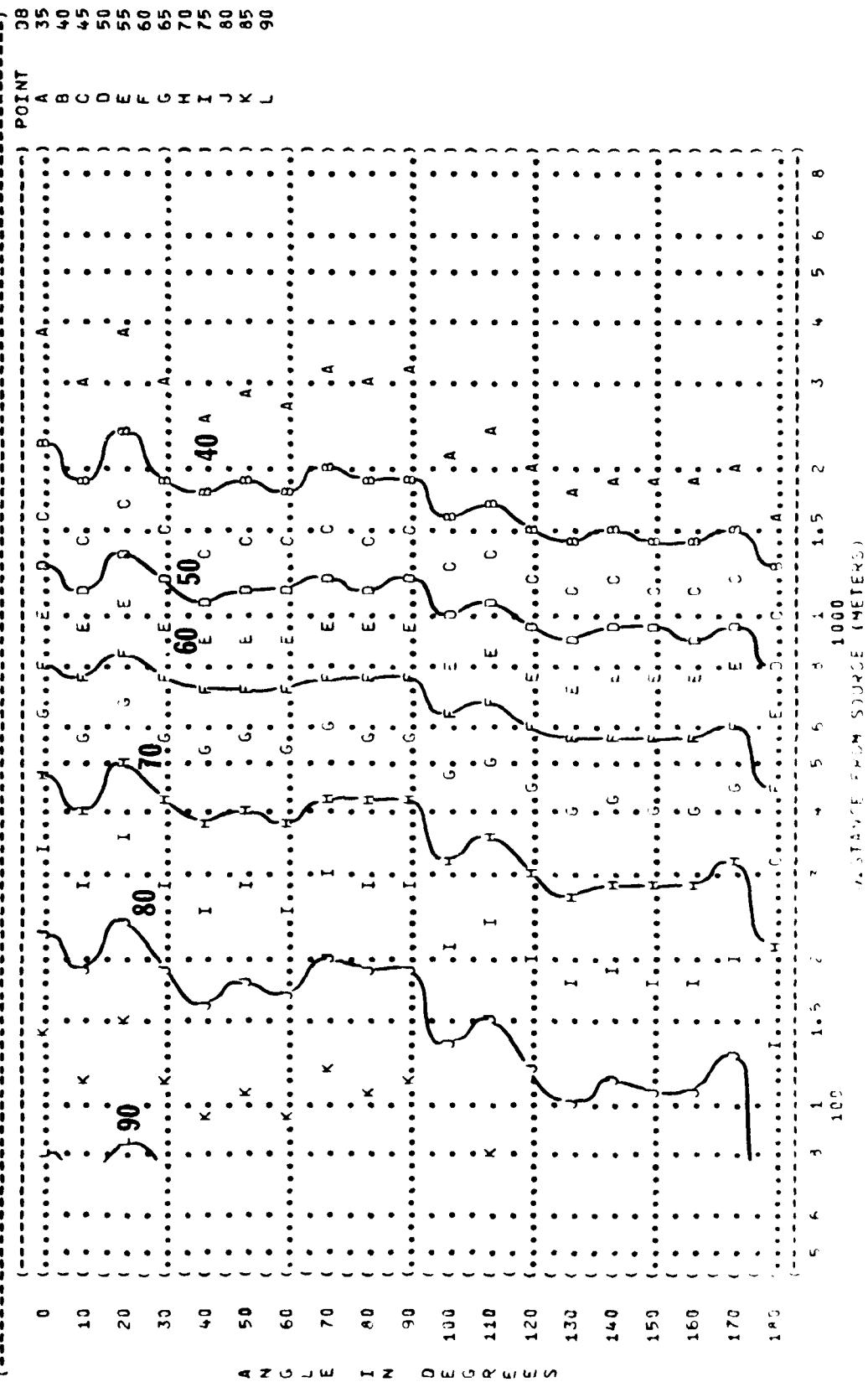


FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS
250 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: A-7D AIRCRAFT IN THE AF32A-19 SUPPRESSOR ENGINE TF41-A-1 FAR FIELD NOISE

OPERATION: MILITARY POWER, 96% RPM SINGLE ENGINE SUPPRESSED GROUND RUNUP

METEOROLOGY: TEMP = 15 C RAR PRESS = .760 M Hg REL HUMID = 70 %

PAGE 21

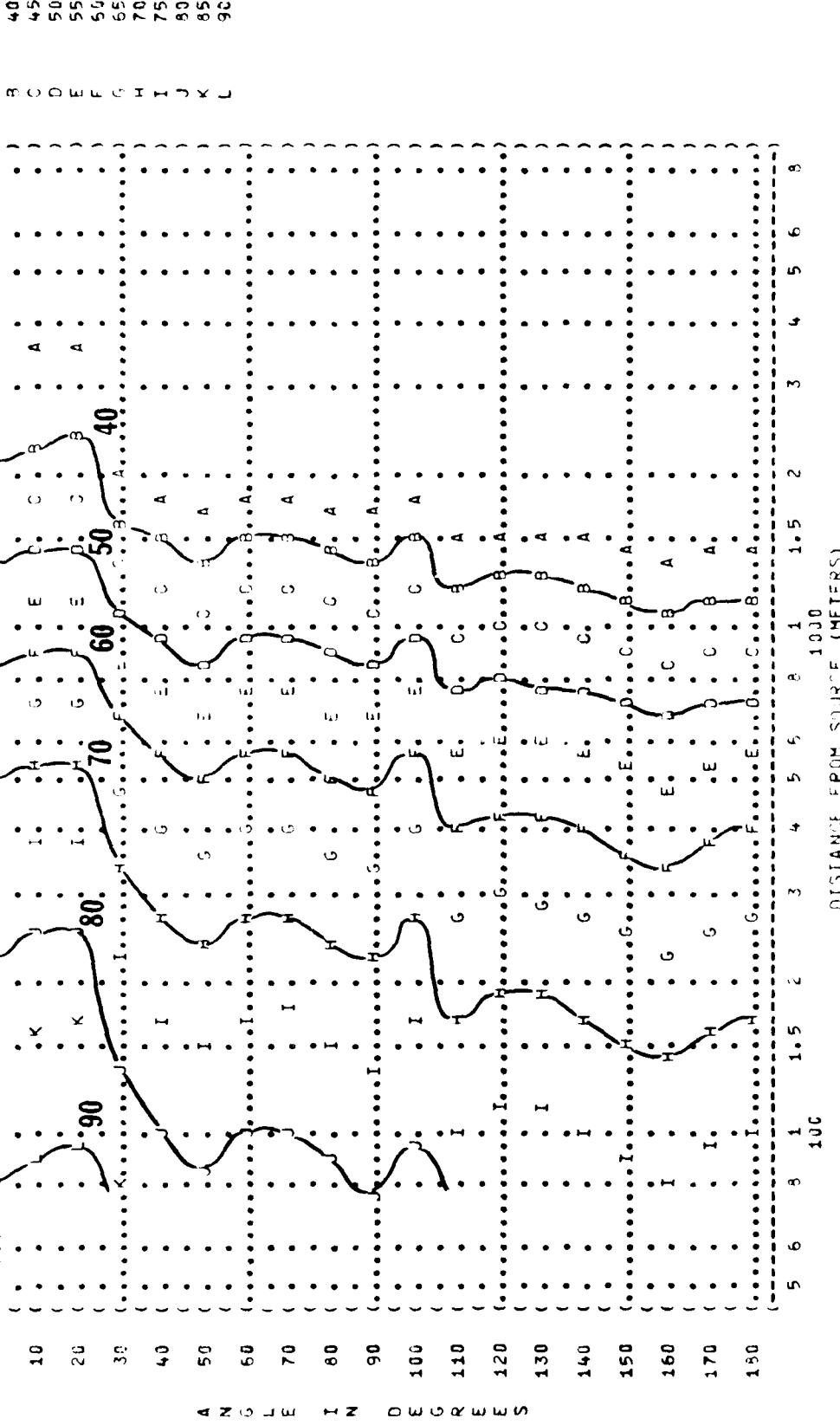


FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 600 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT: OPERATION: MILITARY POWER, 96% RPM
 A-70 AIRCRAFT IN THE SINGLE ENGINE
 AF32A-19 SUPPRESSOR SUPPRESSED GROUND RUNUP

IDENTIFICATION:

OMEGA 1.6
 TEST 77-833-001
 RUN 04

TEMP = 15 C
 BAR PRESS = .760 MM Hg
 REL HUMID = 70 %

PAGE 22

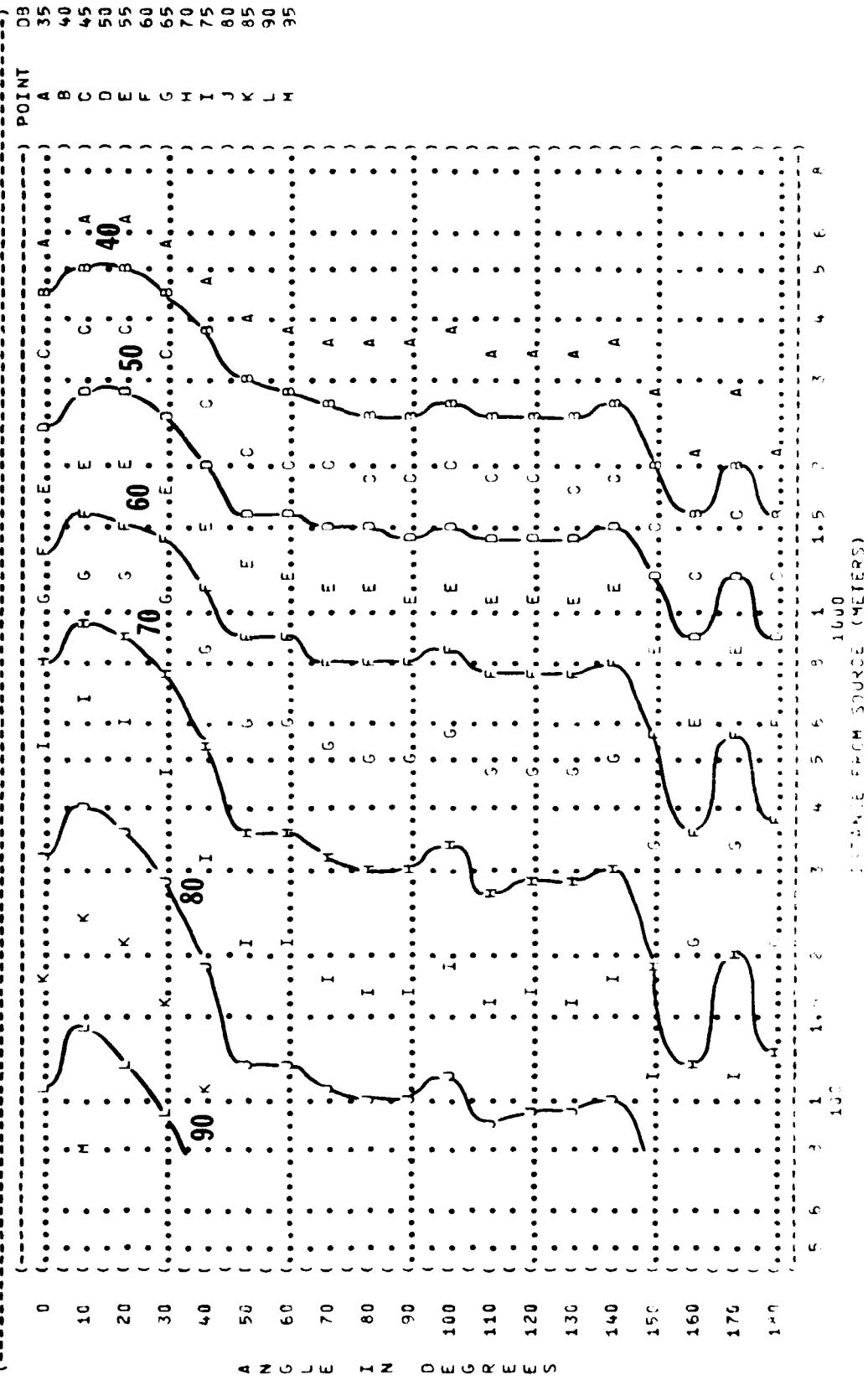


FIGURE 1 SOUND PRESSURE LEVELS (dB)
EQUAL LEVEL CONTOURS
11 1000 Hz OCTAVE BAND

INCISE SOURCE/SUBJECT:
A-7C AIRCRAFT IN THE
AF32A-14 SUPPRESSOR
ENGINE TFE1-A-1
FAR FIELD NOISE

OPERATION:
MILITARY POWER, 96% RPM
SINGLE ENGINE
SUPPRESSED GROUND BUMPER

METEOROLOGY:
TEMP = 15 °C
BAR PRESS = 1016 m HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4

TEST 77-033-001
RUN 04

20 NOV 79

PAGE 23

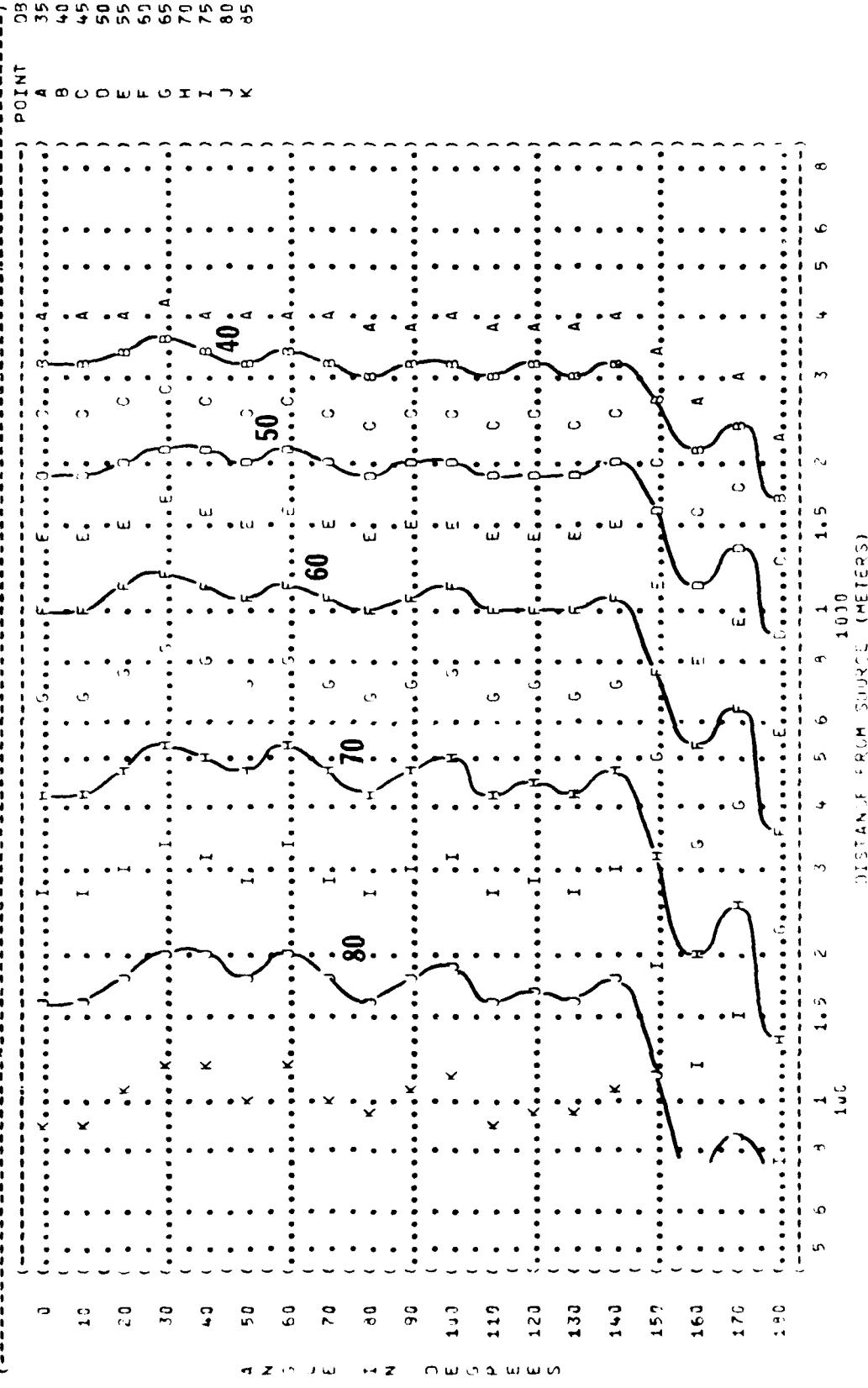


FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
2000 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7U AIRCRAFT IN THE
AF32A-19 SUPPRESSOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION:
MILITARY POWER, 96% RPM
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY:
TEMP = 15°C
BAR PRESS = 760 MM HG
REL HUMID = 70%
TEST 77-A33-001
RUN 04
PAGE 24

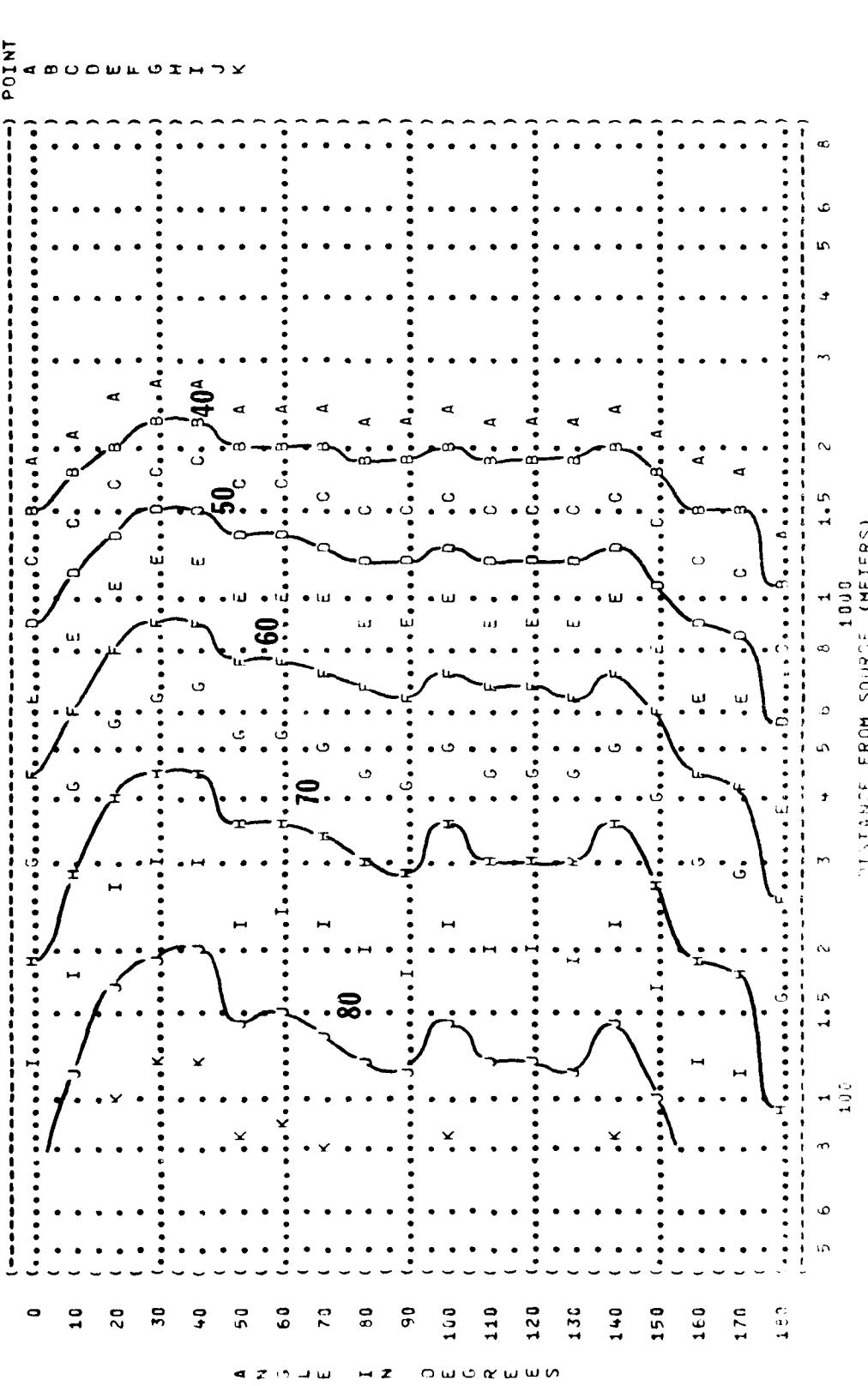


FIGURE 1
NOISE SOURCE LOCATIONS (SPEC)
11
SOLID AIRCRAFT INSTRUMENTS TEST
WIDE-AIR STUTAVIE SANDE

NOISE SOURCE/SUBJECT DATA
A-7J AIRCRAFT IN THE
AF32A-19 SUPPLY BOR
ENGINE TF41-A-1
FAR FIELD NOISE

OPERATION
MILITARY POWER, 96% RPM
SINGLE ENGINE
SUPPRESSED GROUND RUNUP

METEOROLOGY
TEMP = 15 C
BAR PRESS = .760 Hg
REL HUMID = 70 %

TEST 77-837-C01
RUN 04
PAGE 25

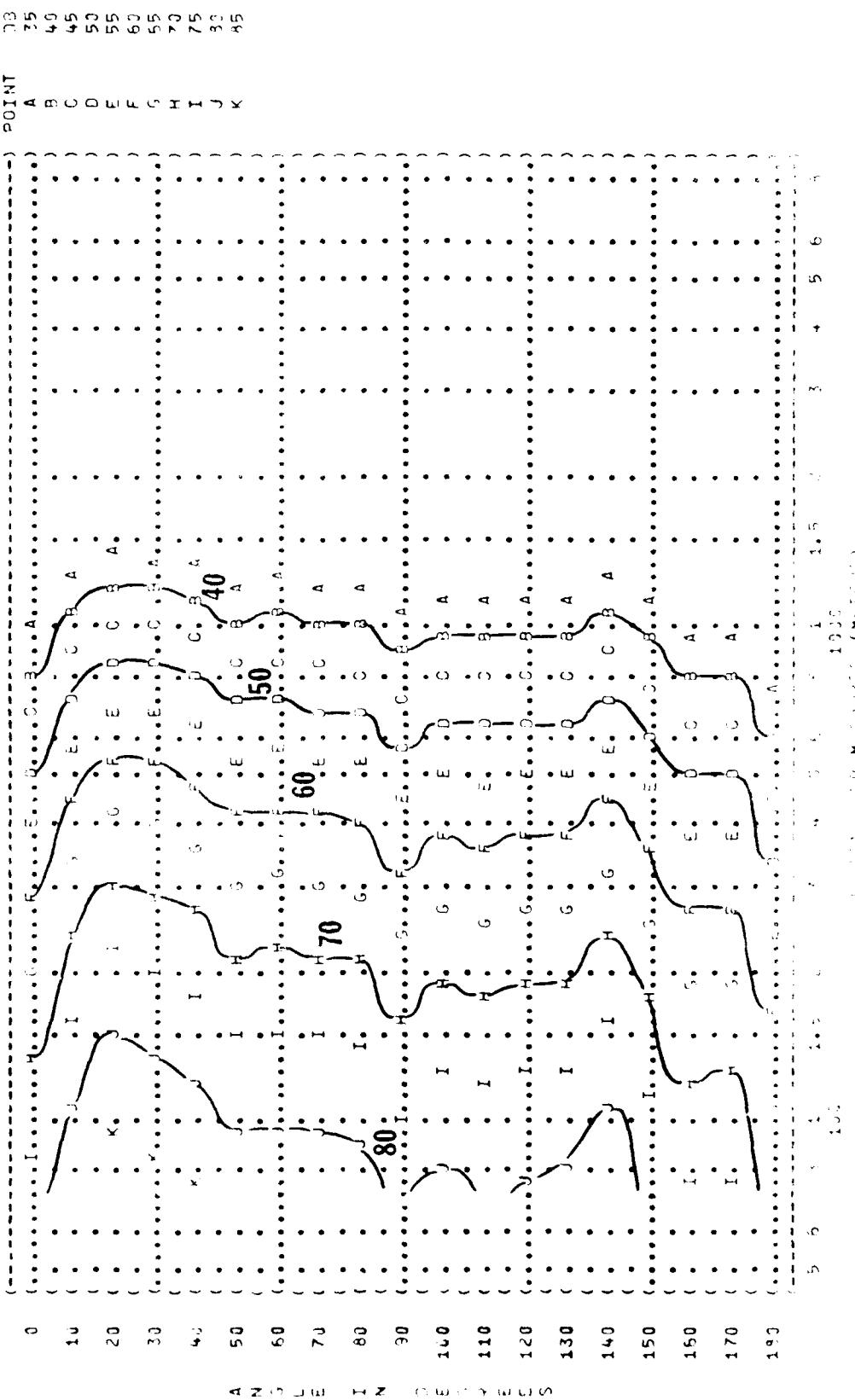


FIGURE: SOUND PRESSURE LEVEL (SPL)
11 EQUAL LEVEL CONTOURS
 6000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-70 AIRCRAFT IN THE
 AF32A-19 SUPPRESSOR
 ENGINE TF41-A-1
 FAR FIELD NOISE

OPERATION:
 MILITARY POWER, 96% RPM
 SINGLE ENGINE
 SUPPRESSED GROUND RUNUP

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HS
 REL HUMID = 70 %

TEST 77-833-001
 RUN 04
 10⁴
 20 NOV 79
 PAGE 26

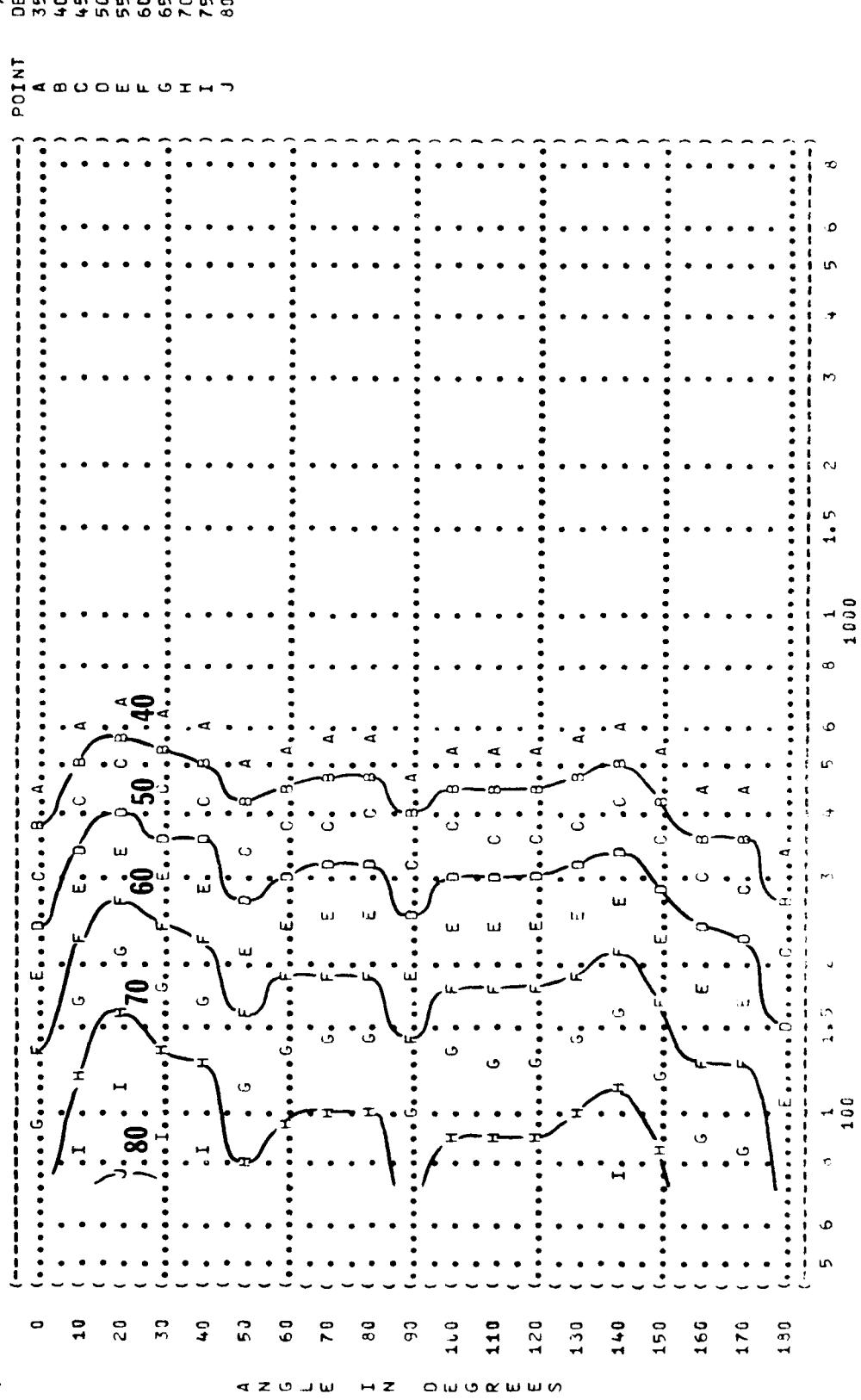


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
11
 31.5 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:

MILITARY POWER (97.7%
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

(CONTINUED ON BACK)

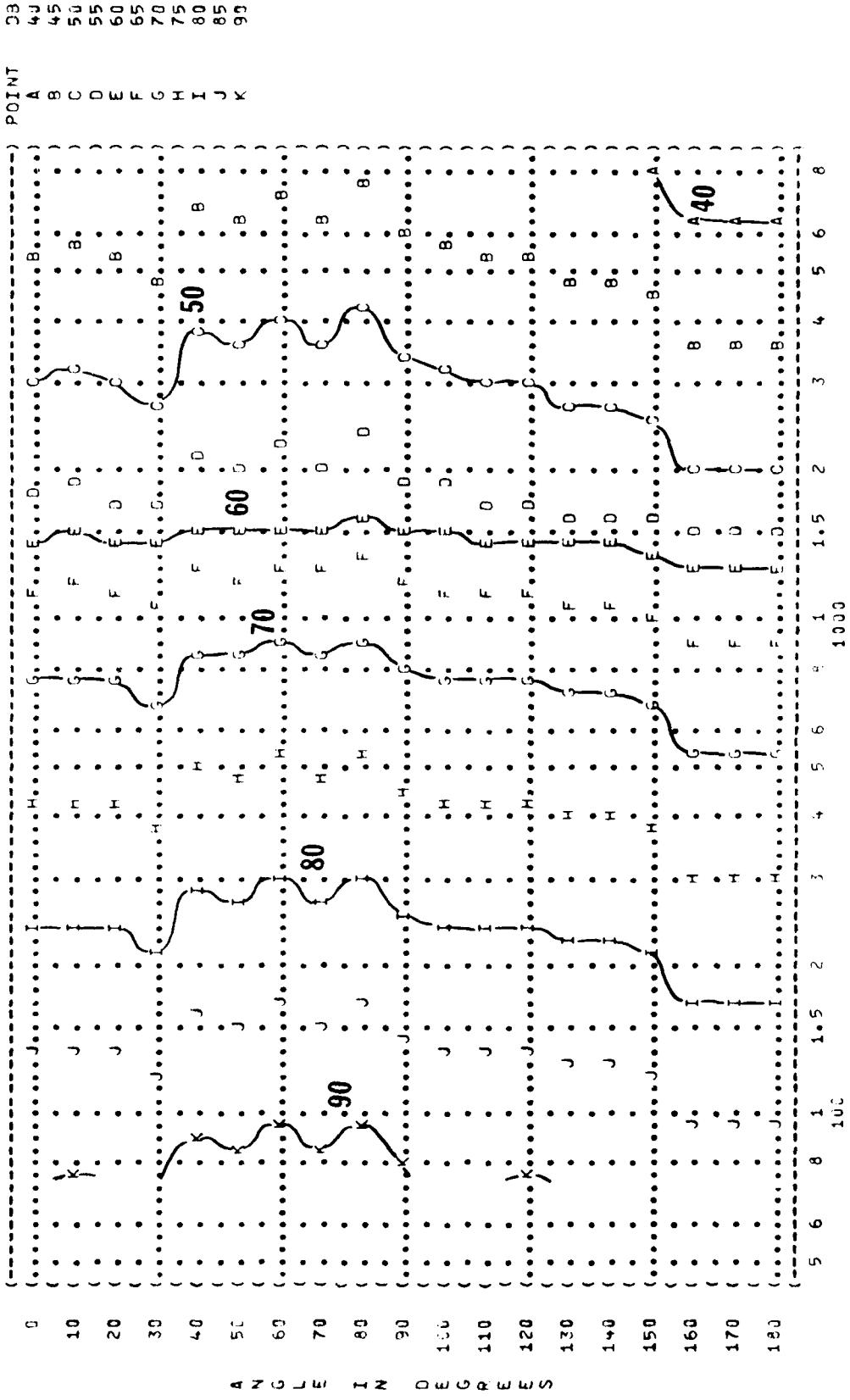


FIGURE : SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT : OPERATION 1
A-7 AIRCRAFT IN THE MILITARY POWER (97.7%)
AF32A-24 SUPPRESSOR SINGLE ENGINE
ENGINE TF41-A-1 GROUND RUNUP (SUPPRESSED)
FAR-FIELD NOISE

METEOROLOGY : TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
TEST 75-833-001
RUN 04
PAGE 19

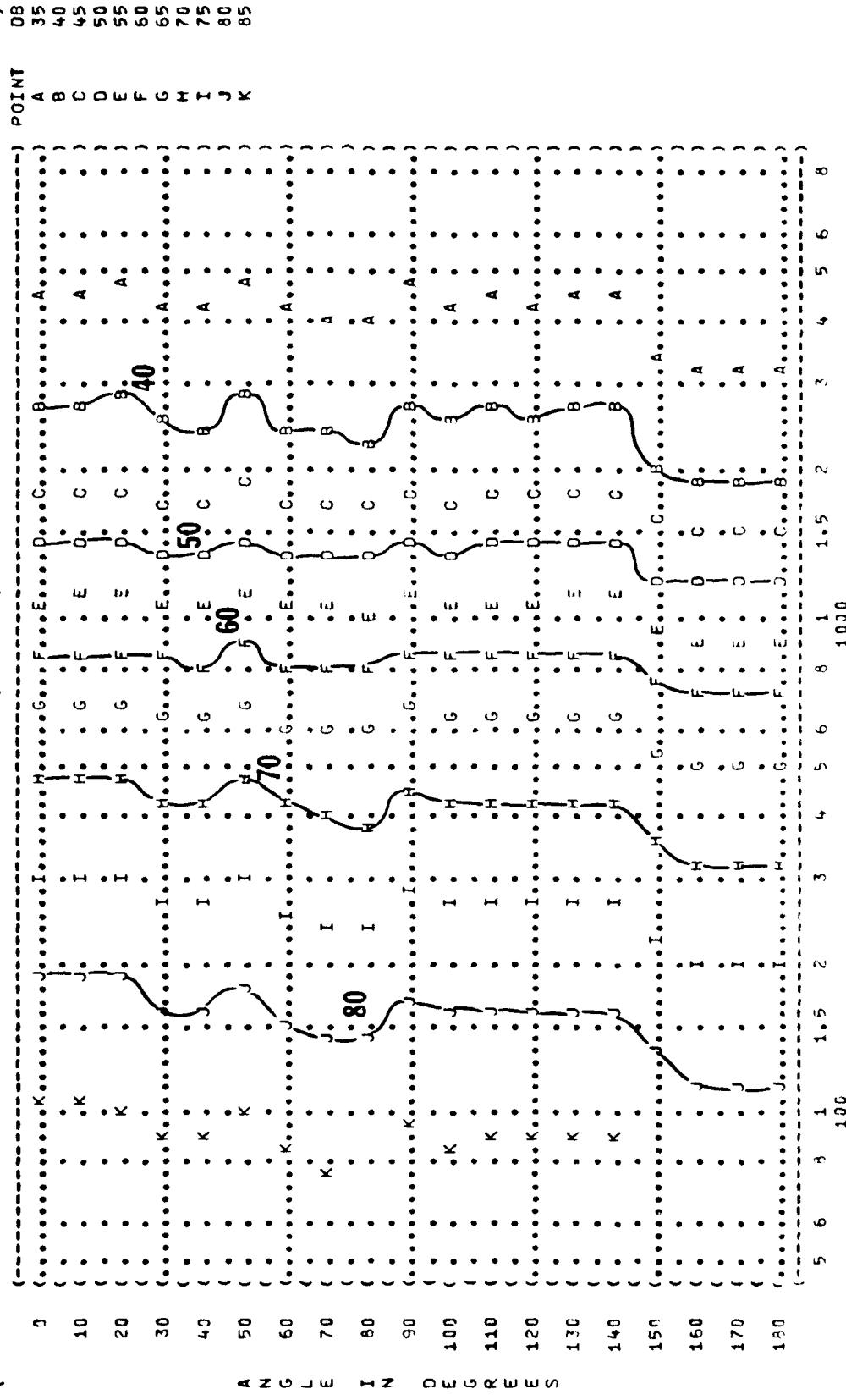


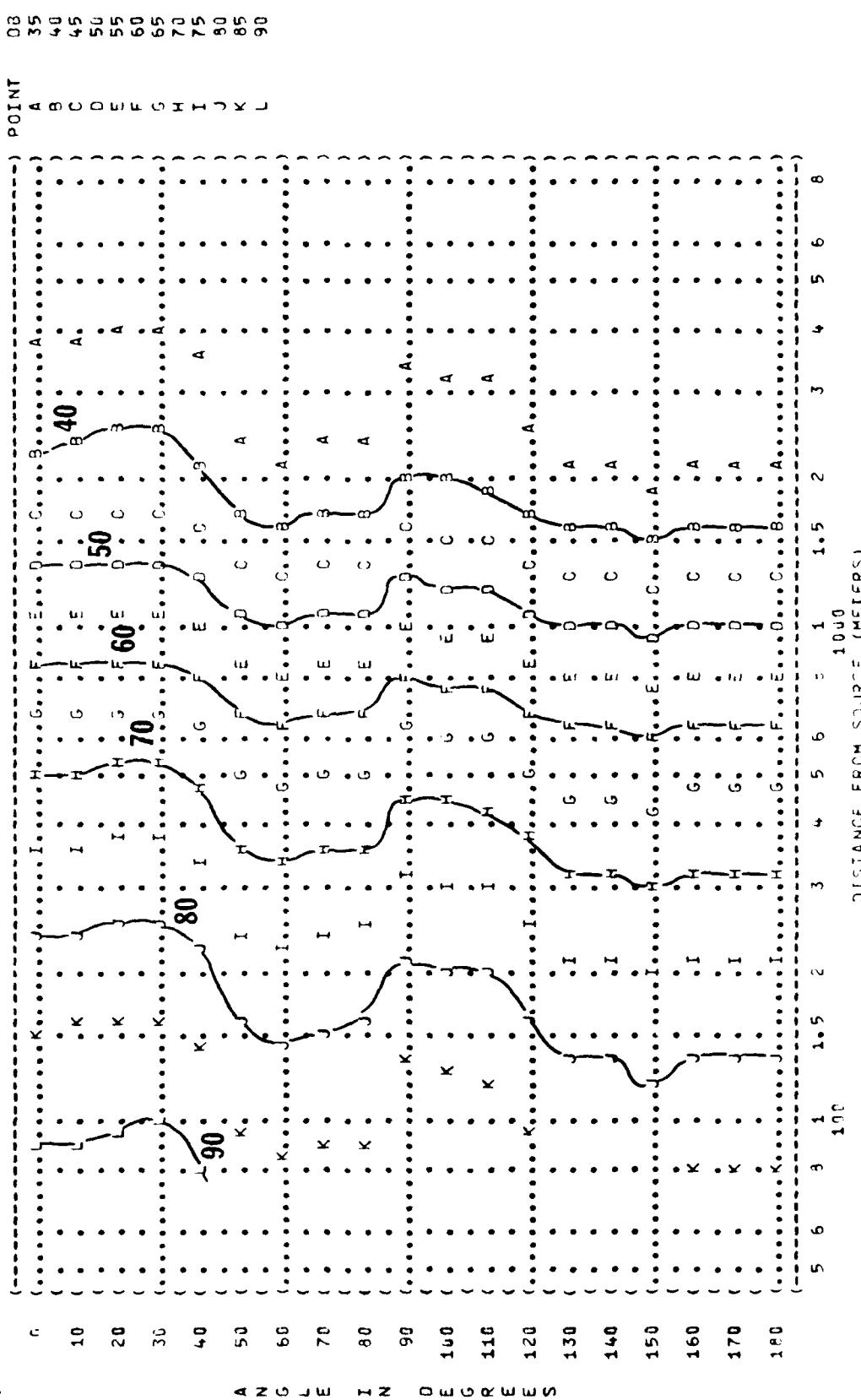
FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)
125 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
MILITARY POWER (97.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

TEST 78-8333-C01
RUN 04
PAGE 20



(FIGURE 11)
 (SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (250 Hz OCTAVE BAND
 (11)

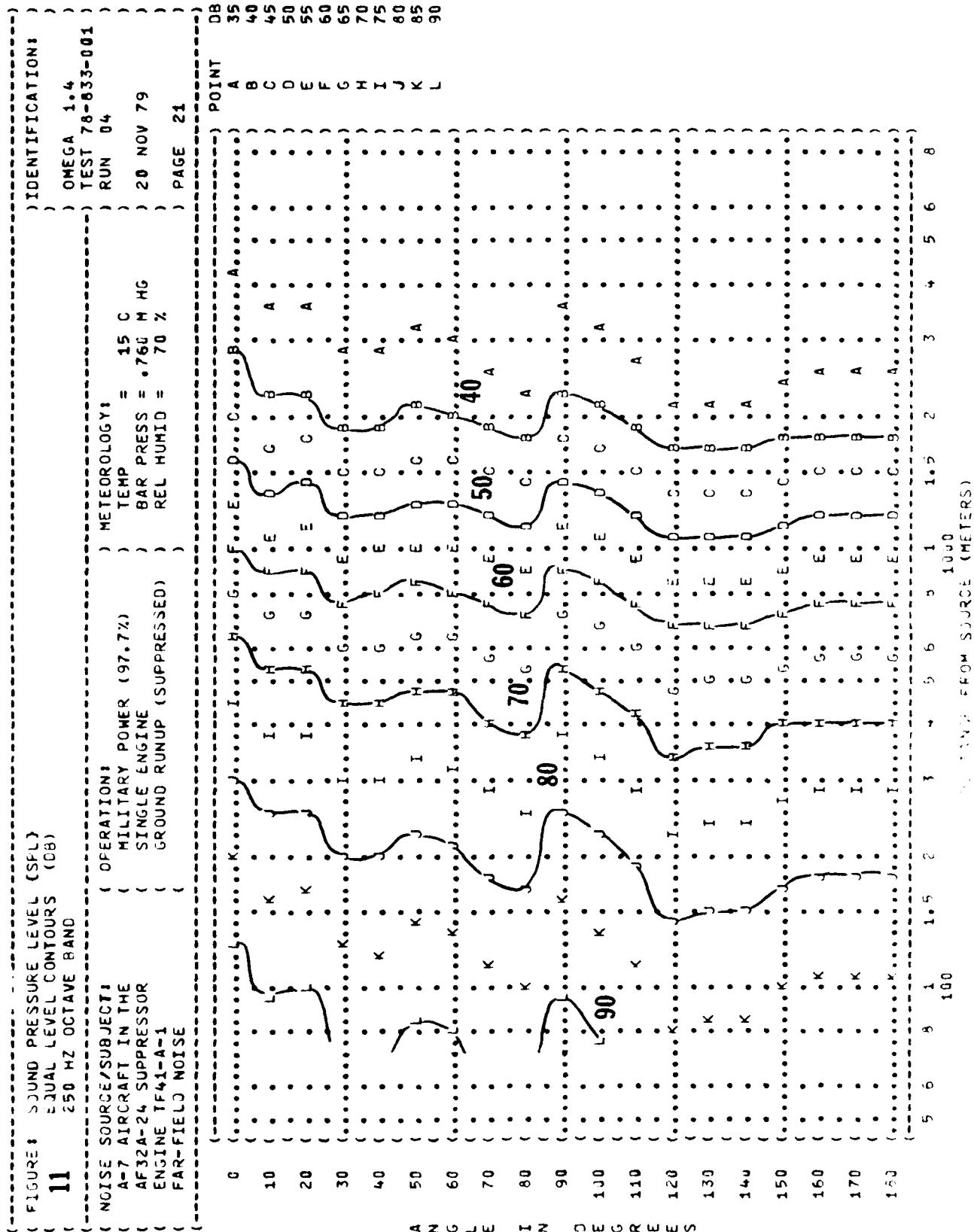


FIGURE 1 SOUND PRESSURE LEVEL (CSL)
EQUAL LEVEL CONTOURS (dB)
11 50 Hz OCTAVE BAND

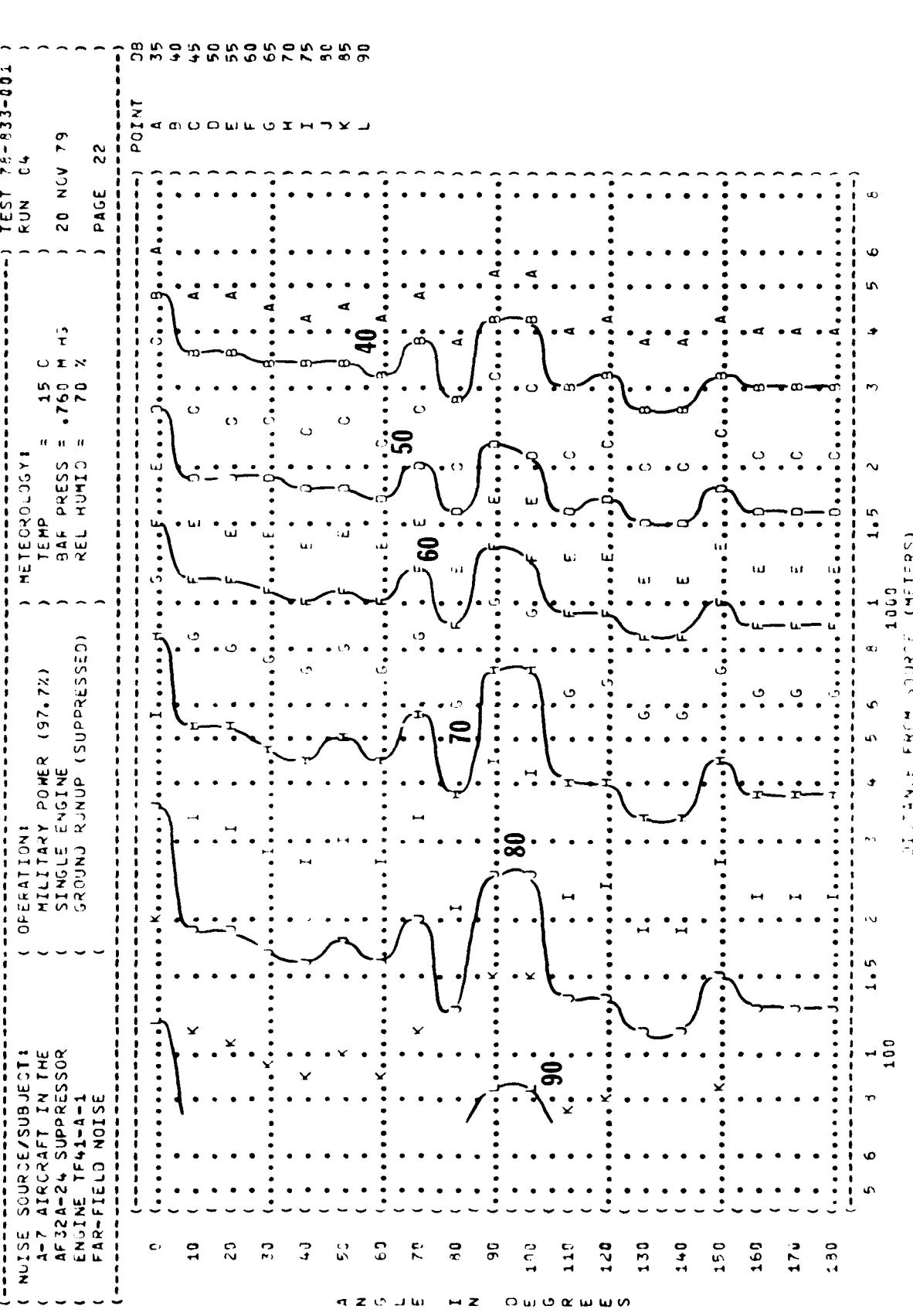


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 1300 Hz OCTAVE BAND

SOURCE/SUBJECT: A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION: MILITARY POWER (97.7%)
SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %

TEST 78-833-001
RUN 04
20 NOV 79
PAGE 23

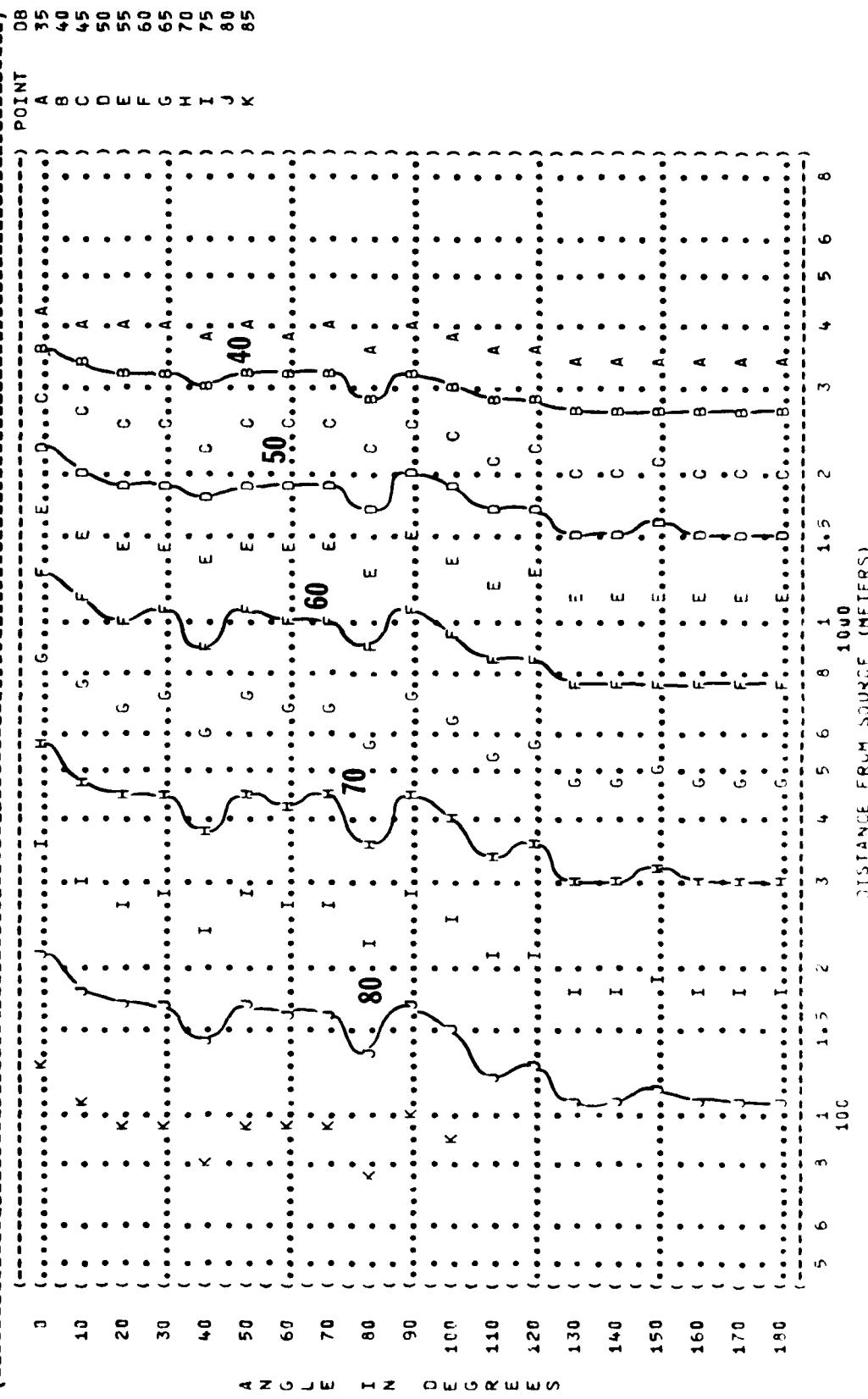


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (dB)

11

2100 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF 32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
MILITARY POWER (97.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:

TEST 78-833-001

RUN 04

OMEGA 1.4

20 NOV 79

PAGE 24

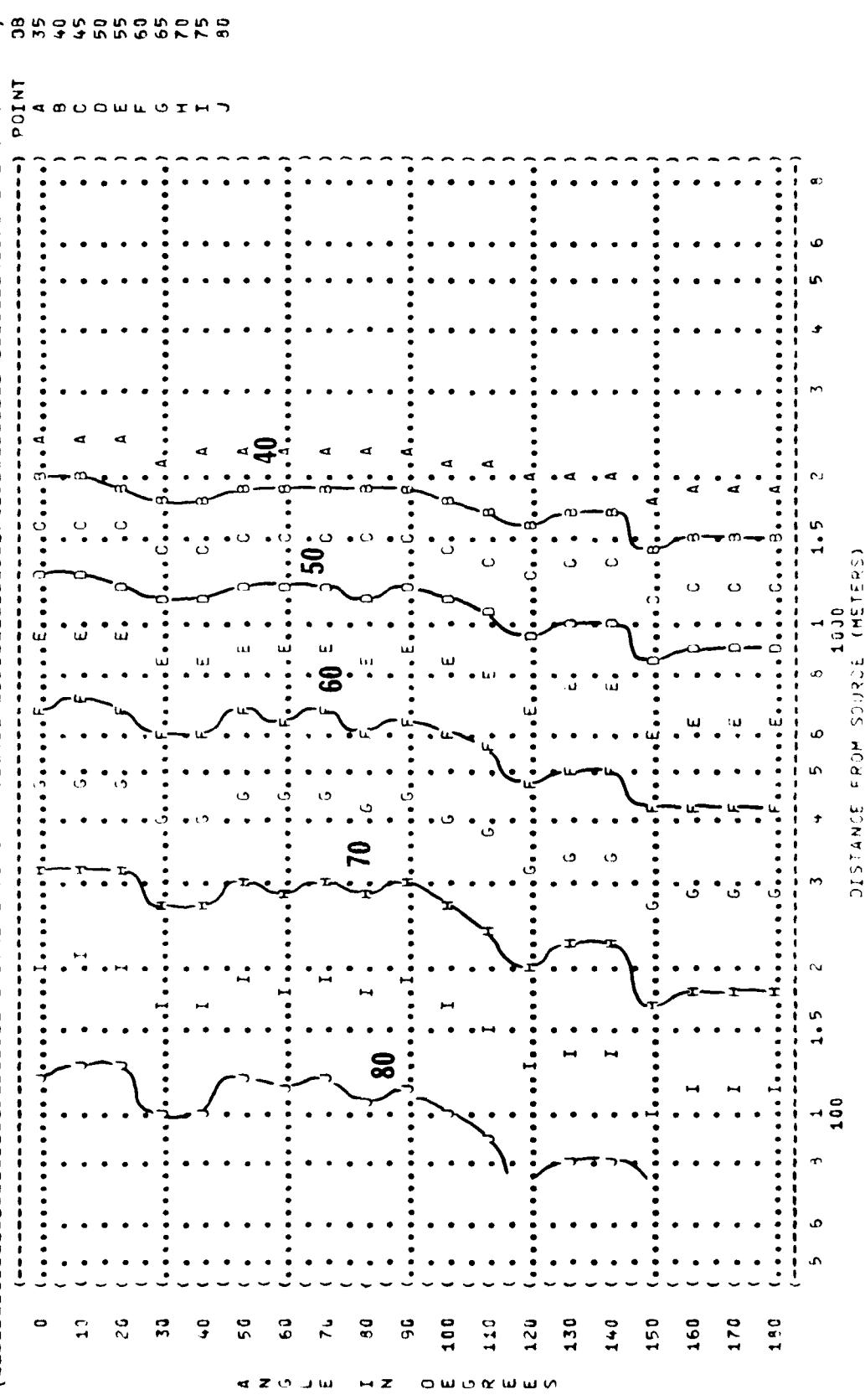


FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS
 11 4300 Hz OCTAVE BAND

NOISE SOURCE/SUBJECT:
 A-7 AIRCRAFT IN THE
 AF 32A-24 SUPPRESSOR
 ENGINE TF41-A-1
 FAR-FIELD NOISE

OPERATION:
 MILITARY POWER (97.7%)
 SINGLE ENGINE
 GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

TEST 76-833-001
 RUN 04
 OMEGA 10⁴
 20 NOV 79
 PAGE 25

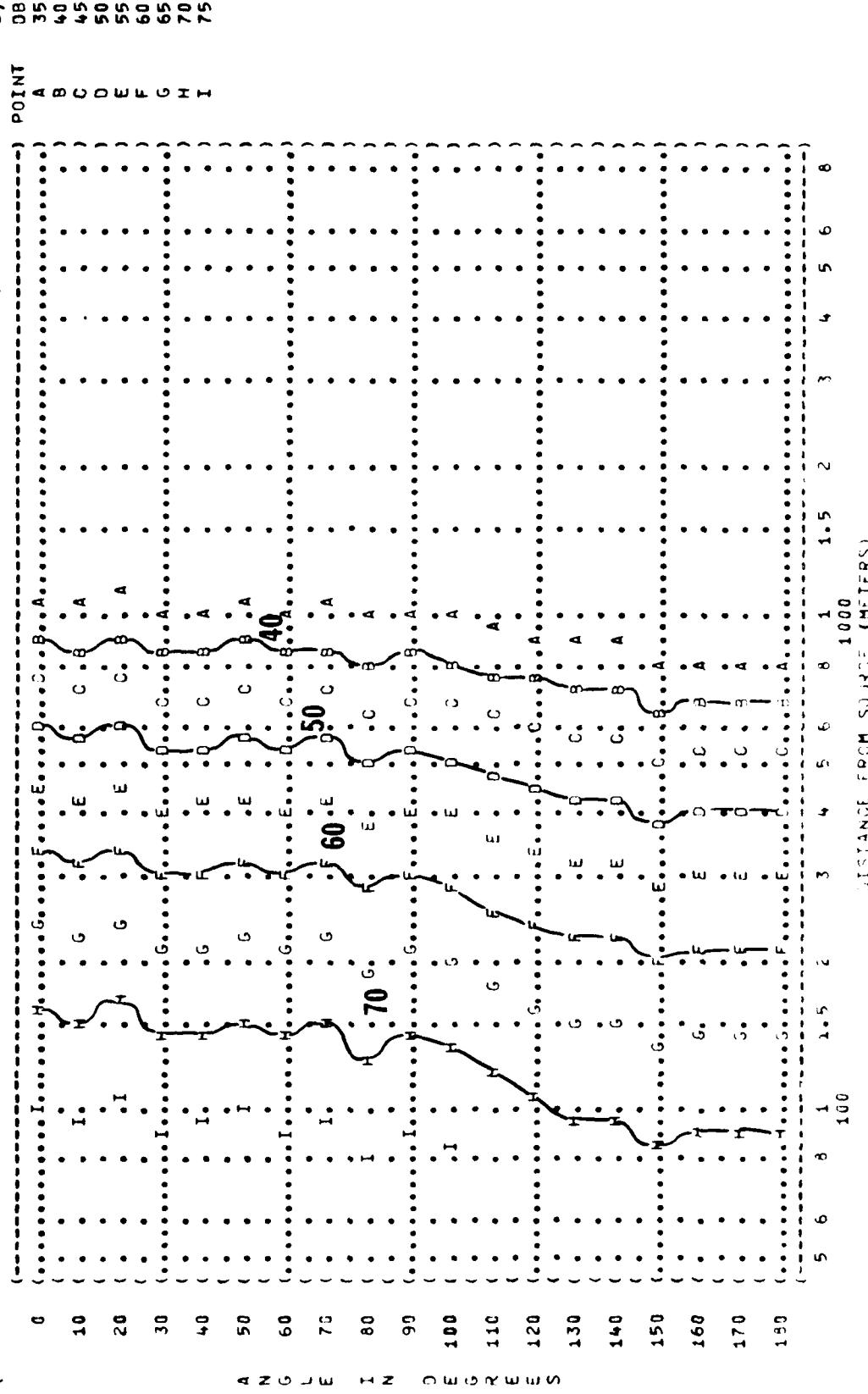


FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUIAL LEVEL CONTOURS
11 6000 HZ OCTAVE BAND

NUISSE SOURCE/SUBJECT:
A-7 AIRCRAFT IN THE
AF32A-24 SUPPRESSOR
ENGINE TF41-A-1
FAR-FIELD NOISE

OPERATION:
MILITARY POWER (97.7%)
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

IDENTIFICATION:
OMEGA 1.4
TEST 78-833-001
RUN 04
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
PAGE 26

